



Digital Community System Toolkit

Resources for Developing Person-Centered Digital Tools to Support Delivery of Integrated Community Services



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FROM THE AMERICAN PEOPLE

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Data for Implementation

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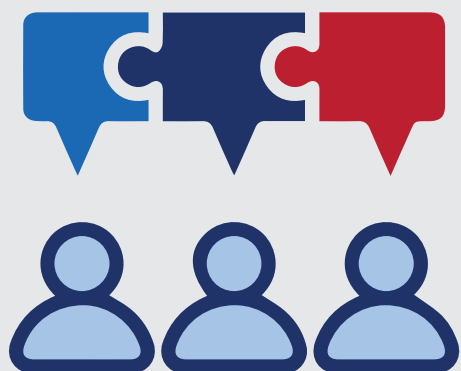
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ABBREVIATIONS

API	application programming interface
CHW	community health worker
DCS	digital community system(s)
DPG	digital public goods
DREAMS	Determined, Resilient, Empowered, AIDS-free, Mentored, and Safe
EMIS	education management information system
FGD	focus group discussion
FIRE	Fast Healthcare Interoperability Resources
FP	family planning
GBV	gender-based violence
HIE	health information exchange
HIS	health information system
HLV	Health Level 7 International
HMIS	health management information system
ICT	information communication technology
IP	implementing partner
IT	information technology
GBV	gender-based violence
HMIS	health management information system
KPI	key performance indicator
LOINC	Logical Observation Identifiers Names and Codes
M&E	monitoring and evaluation
MIS	management information system
MOH	Ministry of Health
PII	personally identifiable information
SMART	Standards-based, Machine-readable, Adaptive, Requirements-based, and Testable
SNOMED CT	Systematized Nomenclature of Medicine – Clinical Terms
TWG	technical working group
UNICEF	United Nations Children’s Fund
WHO	World Health Organization



SECTION I:
Introduction

Introduction

Digital Community Systems Toolkit: Resources for Developing Person-Centered Digital Tools to Support Delivery of Integrated Community Services is a resource to guide community services stakeholders through the process of designing and adopting person-centered and integrated digital community systems. The digital community system(s) (DCS) toolkit provides guidance for diverse stakeholders involved in leading the digital transformation of community services. It emphasizes the importance of a structured approach to ensure that DCS are centered around the individual and the community.

Based partially on the process followed to plan and deliver the DCS Workshop in the Southern Africa Region, held in Cape Town, South Africa, in November 2023, resources from this toolkit offer insights and strategies for workshop planning, ecosystem assessment, understanding users and their requirements, DCS vision development, technical implementation considerations, and country roadmap development. Users are encouraged to customize the toolkit to address their specific needs and contexts.

The toolkit serves as a practical guide for policymakers, implementers, and stakeholders involved in digital health, focusing on person-centered and integrated digital ecosystems. By promoting partnerships and collaboration among key stakeholders, it aims to enhance service delivery, system maturity, and stakeholder collaboration in the realm of community health services and digital transformation.



Objective of the toolkit



Provide structured guidance on how to plan and conduct a collaborative DCS workshop, leveraging person-centered design approaches.



Provide insights on key technical concepts and processes for DCS, including architecture, interoperability, standards, product selection, legacy system integration, and agile team approaches.



Provide resources to support workshop and post-workshop activities, including around strengthening governance, roadmap development, and monitoring and evaluation (M&E).

Overall objective

To provide structured resources that enable facilitators to effectively conduct workshops and foster participants' understanding of the critical role that DCS play in enhancing service delivery.

Target audience

The target audience for this toolkit is stakeholders involved in community health services, social services, and digital transformation. They include the groups shown below.



Policymakers and government officials:

Government officials involved in healthcare, social services, and community development, including policymakers shaping the digital transformation of community services.



Workshop organizers and facilitators:

Organizations and individuals planning and delivering workshops on DCS design and implementation.



Researchers and academics:

Researchers studying the intersection of technology and community services, including academics teaching and researching in fields related to DCS.



Technical teams and information technology professionals:

Technical teams involved in designing architecture, interoperability, and integration approaches for community systems, and information technology (IT) professionals responsible for developing and implementing digital solutions.



Donors and implementing partners:

Organizations providing funding and technical support for community service digital transformation.



Health professionals:

Professionals in the healthcare sector interested in leveraging digital solutions.



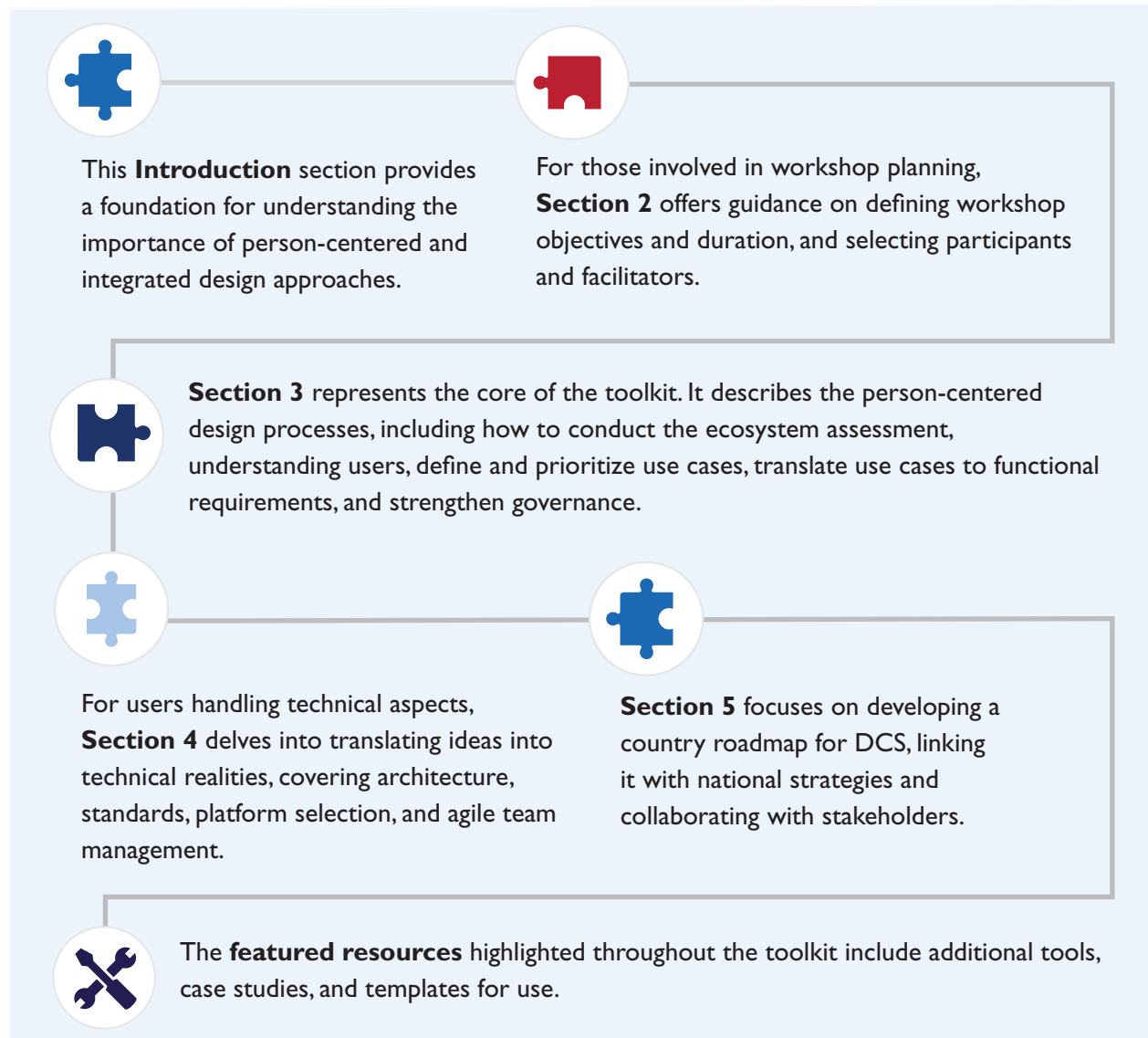
Digital health strategists:

Professionals developing and implementing digital health strategies at the national level.

By targeting these diverse groups, the toolkit aims to cater to the varied needs and perspectives of those involved in the complex process of digitally transforming community services using a person-centered and integrated design approach.

How to use the toolkit

To most effectively use this toolkit, you can “choose your own adventure,” focusing on the resources that best meet your needs. Start by reviewing the map below to understand the toolkit’s overall structure and objectives, and then navigate to the sections that best meet your needs.



In summary, this toolkit serves as a comprehensive guide for diverse stakeholders involved in leading the digital transformation of community services. By providing tools and approaches that focus on peoples’ needs, and promote collaboration among key stakeholders, it emphasizes the importance of a structured approach to ensure that DCS are centered around the individual and the community.

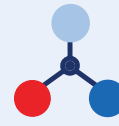
What is a digital community system?

A digital community system refers to a comprehensive set of Information and Communication Technology tools and platforms designed to facilitate person-centered and multi-sectoral approaches in delivering primary health and community services. The DCS definition embraces the following principles:



Person-centered:

Focuses on addressing individual needs and preferences rather than just treating medical conditions or gathering data.



Multisectoral:

Embraces an interconnected approach to tackling health, well-being, and societal considerations.



High quality:

Responds to individuals' needs, using data-informed insights and continuous process improvements to provide safe, effective, and trusted services.



Equitable:

Offers each person a fair opportunity to attain their highest level of health, regardless of social or demographic factors.



Efficient:

Maximizes the use of resources and time for streamlined service delivery.

Why a person-centered and integrated approach to digital community systems design?

Key challenges of traditional design approaches

Many existing and proposed DCS around the world focus on data collection and reporting, rather than on providing support to service providers and people accessing community services. Digital systems that prioritize data collection and reporting over a person-centered approach can face challenges, including lack of user engagement and low user satisfaction, as users may not see the system as relevant to their needs. Despite a focus on data collection and reporting, collected data are often underused when it comes to adaptively managing programs and improving

KEY CONCEPTS



For a DCS, **person-centered design** refers to an approach that prioritizes the needs, preferences, and experiences of individuals in the community and the various community service providers, including health and other social services. This design approach requires the development of a deep understanding of community perspectives, behaviors, and goals to make sure that the resulting digital tool meets key stakeholder needs.

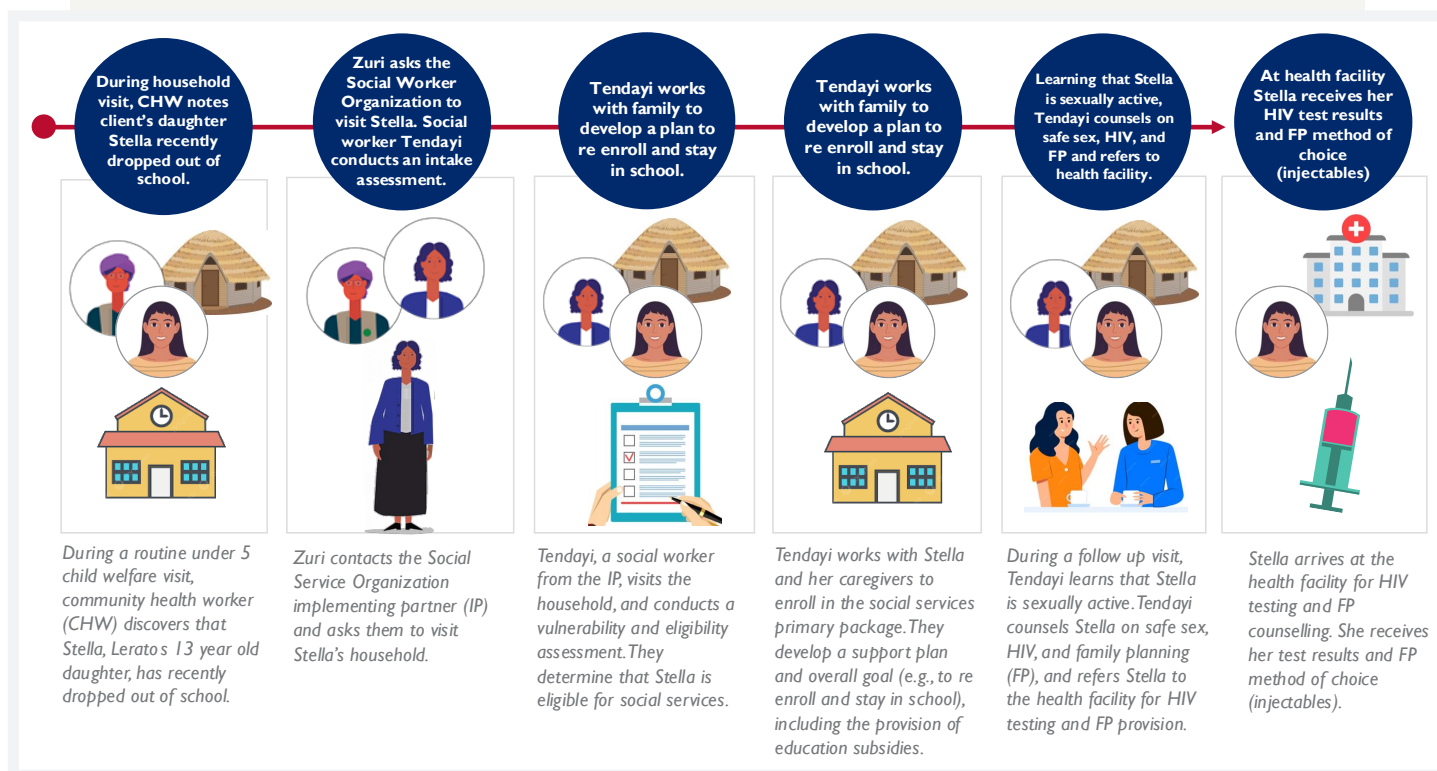
service delivery.¹ Additionally, many existing and proposed DCS support only one area of service provision, for example, one health program, and are not able to exchange data with other digital systems. This hinders effective service provision, as illustrated in the user journey below.

KEY CONCEPTS

Integrated digital community systems enable seamless data sharing and communication across different community service providers, improving efficiency, service delivery, and decision making. By integrating platforms for health, education, social services, and more, these systems ensure that community workers have access to comprehensive and up-to-date information, ultimately enhancing the quality and coordination of services.

USER JOURNEY I

Zuri, a community health worker, struggles to provide integrated care for her client, Stella



This user story illustrates the barriers to effective care that siloed systems optimized for reporting can create.

¹ PATH. (2021). *PMI digital community health initiative cross-country landscape report: Understanding the use of digital technologies in community health programs*. Seattle, WA, USA: PATH; 2021. Retrieved from https://static1.squarespace.com/static/59bc3457ccc5c5890fe7cacd/t/620be09ed784a362a9e421ce/1644945569802/PMI_DCHI_Global_Report.pdf

The siloed and reporting-oriented approach to DCS can create a number of challenges, including:

- **Poor user experience for service providers:** Digital systems that are designed for data collection frequently do not fit well within service providers' workflows, which means that they have to spend extra time on data entry. These digital systems also miss out on the opportunity to improve service delivery by providing key information, job aids, or decision support within the service interaction.
- **Poor experience for clients:** Digital systems that are not person-centered can create challenges for people receiving services. For example, clients may have to spend time re-registering across multiple systems, or their service providers may not see key information that would help ensure they receive the services they need.
- **Fragmented data:** Siloed systems that do not communicate with each other usually lead to fragmented data stored in multiple systems. This makes providing timely and coordinated care difficult, and can make it challenging to get a full picture of individual and community needs, behaviors, and outcomes.
- **Limited interoperability:** When systems are not interoperable, or are not able to easily exchange data, it is more challenging to update or integrate new technologies into the system. This presents barriers to DCS adaptability and development. Limited interoperability also contributes to data fragmentation and makes it harder for clients to receive coordinated services within a system.
- **Inefficient resource allocation:** Siloed approaches may result in the inefficient allocation of resources. Each separate system may need its own dedicated resources for maintenance, upgrading, and support tasks, possibly leading to duplicate actions while also increasing expenses.
- **Duplication of efforts:** Without proper communication and coordination, multiple teams or sectors may build digital systems with similar or identical capabilities, leading to redundancy and contributing to inefficient resource allocation.
- **Limited cross-functional insights:** Siloed systems often limit the ability to gain valuable insights from multiple perspectives. For instance, health data may be difficult to link with education or economic information. This poses a challenge to delivering integrated, person-centered care, and prevents a comprehensive picture of community dynamics.
- **Difficulty in scaling:** Scaling a DCS that relies on siloed approaches can be challenging. Without an integrated and scalable design, it can be difficult to add functionalities or adapt to changing requirements.

Making the case for person-centered and integrated DCS

Adopting a person-centered and integrated approach to DCS can address many of the challenges described above. This approach supports digital transformation, providing space for stakeholders to reimagine service provision and leverage digital tools to improve the experiences and outcomes for all stakeholders involved. The following graphic on user journey 2 shows the different ways that a person-centered DCS could change the user journey described above, supporting Zuri's work, and transforming her workflows and her ability to provide high-quality care to the people she serves.

KEY CONCEPTS



Digitization involves converting analog data into digital formats.

Digitalization focuses on leveraging digital technologies to improve existing processes and operations.

Digital transformation involves a broader strategic shift, adapting service delivery program design and workflows to leverage the advantage digital tools can provide.

USER JOURNEY 2

Empowerment through seamless interaction with the DCS



- Zuri, a committed CHW, used an integrated digital community system to support her work. During a routine household visit, Zuri learned sensitive information about Stella. Using the DCS, she securely recorded it and referred Stella to the social worker, Tendayi, with a few taps. Tendayi was notified of the referral, and Zuri was able to continue receiving updates on Stella's case, illustrating the power of digital referrals for continuity of care.
- During another visit, Zuri spotted a need for medical services and initiated a digital referral to the health clinic. The nurse was notified immediately, and Zuri was able to receive reminders about accompanying Stella to her upcoming appointment, streamlining access to health care.
- The DCS sent her reminders, empowering her to promptly follow up with Stella.

- The digital platform provided timely prompts to Tendayi and the nurse, keeping them updated on Stella’s health status. This enabled Zuri to plan future health education sessions based on Stella’s condition.
- Through this journey, Zuri emerged as an empowered community health advocate, strengthening the quality of care for Stella and the community. She transformed her role from a caregiver to a navigator, steering the community toward a healthier future.

As the graphic above shows, Zuri’s use of an integrated DCS offered several key benefits. By adopting a person-centered and integrated approach, a DCS can address the challenges posed by siloed approaches, as follows:

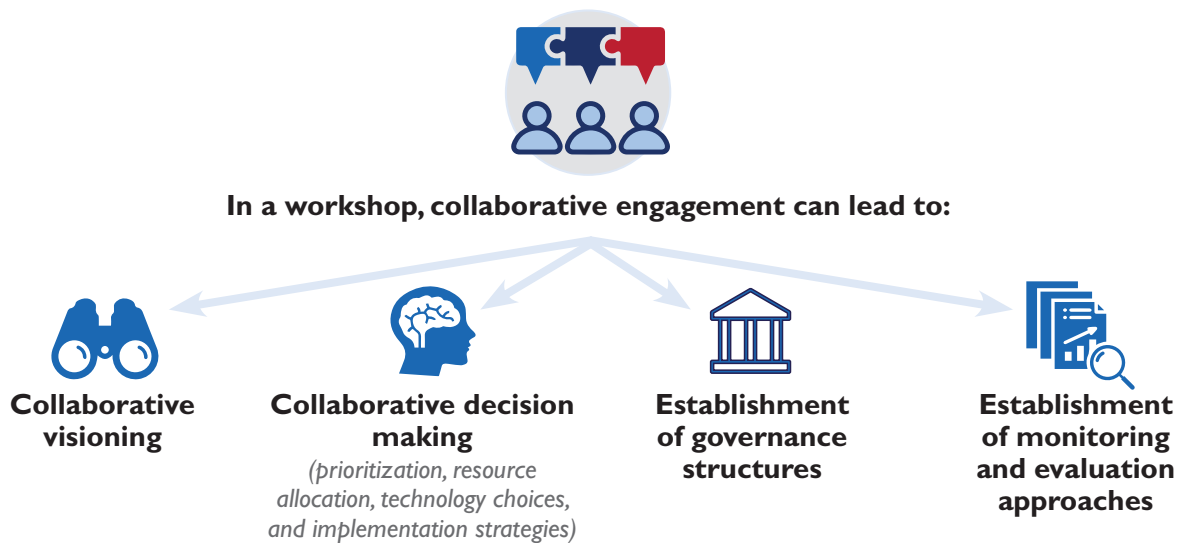
- **Supporting service providers:** The digital platform provides timely prompts to service providers like Tendayi and the nurse, enabling them to access key information and provide higher quality care.
- **Improving the care experience for clients:** Clients like Stella are less likely to fall between the cracks, receiving more personalized services as their health status is promptly updated, empowering Zuri to plan tailored health education sessions.
- **Holistic view of community needs:** An integrated approach allows a holistic understanding of individual and community needs by bringing together data from various domains, such as health, education, and socioeconomic factors. This view enables tailored interventions that consider the diverse and interconnected aspects of community well-being, resulting in more effective and targeted support.
- **Optimized resource allocation:** An integrated system eliminates redundancies and streamlines resource allocation by avoiding duplication of efforts and resources across different program areas and sectors. This optimization can lead to improved cost-effectiveness, maximizing the impact of available resources.
- **Cross-functional insights:** Integrating data from diverse sources facilitates cross-functional insights, enabling a deeper understanding of the interplay among health, education, socioeconomic factors, and more. Decision makers gain a comprehensive understanding of community dynamics, leading to more informed and targeted strategies for community development and support.
- **Scalability and adaptability:** A comprehensive design with a person-centered focus allows scalability and adaptability, accommodating the evolving needs of the community system. The system can grow and evolve, scaling up to meet expanding requirements and adapting to changing circumstances without compromising efficiency.

In short, a person-centered, integrated, and comprehensive DCS not only addresses the challenges associated with siloed approaches that are focused on data collection; it supports the objectives of strengthening primary healthcare. Such an approach contributes to improved access to quality care, enables targeted strategies to address health disparities, and promotes collaboration between different aspects of healthcare and well-being, thereby increasing efficiency and impact.

The need for collaborative design and planning approaches for DCS

A lack of coordination among sectors supporting community services, coupled with weak governance structures for community services, contribute to a siloed approach in both community services and the implementation of digital tools. Effective governance is crucial to address and prevent silos and fragmentation in multisectoral community services. Convening key stakeholders in a collaborative workshop setting can help mitigate these challenges.

Figure 1. Value of collaborative engagement when designing DCS



A workshop can serve as a platform for deliberating on the vision, design, development, and implementation approach for a DCS. It can also facilitate joint planning, decision making on investment choices, and M&E, fostering a cohesive and integrated effort to enhance the overall impact of a DCS.



SECTION 2:

Workshop Planning Processes

The steps outlined below are designed to provide guidance for countries or organizations on how to plan a workshop convening key stakeholders to develop a DCS roadmap. Examples are provided throughout this section from the Southern Africa Regional DCS Workshop. **Please note that this toolkit primarily assumes a multi-country workshop setting; however, it can still be effectively utilized in a single-country context with some adaptations.** For more specific recommendations on content to cover, see Section 3.



For the Southern Africa Regional DCS Design and Planning Workshop, the core planning team was led by USAID and involved Digital Square and the Data.FI project. Through the pre-workshop in-country engagement process, perspectives and ideas were gathered from country government teams and USAID missions.

Defining workshop aims

Objective:

Clearly define the purpose of the DCS workshop.

Because community-level services can span across multiple sectors, planning a DCS requires a multisectoral approach. Develop workshop objectives that are relevant across sectors involved in community services, to help foster shared ownership and leadership. Gather stakeholder input to prioritize objectives and ensure alignment with sectoral goals. Ultimately, the workshop planning team must establish clear objectives that resonate with stakeholders' broader needs.

Determining the duration of the workshop

Objective:

Establish an appropriate duration for achieving the objectives of the DCS workshop.

To determine the length of the workshop, consider what needs to be accomplished to achieve the workshop objectives, and balance this against practical constraints relating to things like participant schedules and available budget. Specifically, consider elements like participants' familiarity with digital systems, what workshop components must be prioritized to ensure productive engagement, and how much time workshop activities require. Be sure to leave enough flexibility in the workshop plan so that workshop facilitators can adjust content based on feedback during delivery of the workshop.



The Southern Africa Regional DCS Workshop objectives were to:

- Support countries to develop and/or strengthen client- and community service providers- centric digital systems focused on supporting service delivery, integrated across various community services.
- Deepen awareness of DCS standards, guidelines, and approaches.
- Support countries to strengthen governance structures for DCS as part of broader digital health governance.
- Facilitate cross-country learning to help optimize and sustain DCS.



The Southern Africa Regional DCS Workshop was held over five days. During the workshop planning sessions, the team considered factors such as the diverse expertise and needs of the participants, participants' time constraints, and ensuring balance between covering needed topics and respected participants' other commitments.

Developing the workshop agenda and delivery methods

Objective:

Outline a structured workshop plan and delivery mechanisms that align with the workshop objectives and ensure the right balance between content delivery and active participation.

The workshop agenda creates a structured plan consistent with the workshop's objectives. This process involves breaking down the workshop's objectives through a three-step approach.

1

Break down the workshop objectives into specific sessions to ensure content is covered in a focused and organized way.

2

Assess the nature of the content slated for each session, and determine what balance of presentations, discussions, and hands-on activities will be most effective.

3

Allocate appropriate time for each session, ensuring space for breaks and transition time between sessions.



The Southern Africa Regional DCS Workshop used innovative and effective mechanisms to enhance engagement and collaboration among participants. One such mechanism was “wall time,” where country groups gathered daily to collaboratively map the path toward digitally transformed community service delivery. Each country team was provided with dedicated wall space and tools, like sticky notes, printouts, markers, and stickers, to actively visualize specific exercises and group activities. Country participants posted and presented the outputs of their discussions and group work on their respective walls to the broader group, fostering a visually dynamic and collaborative environment.

Another engagement mechanism was the creation of a dedicated space known as the “greenhouse.” This served as a platform for participants to post unresolved questions, concerns, or inquiries, ensuring that every participant had a voice throughout the week. Dedicated time during the workshop was allocated to addressing these questions, covering a range of topics—from tablet capabilities to program improvement strategies—thereby promoting inclusivity and addressing participant concerns.

Visual aids also played a significant role in enhancing engagement. Each country group was provided with a PowerPoint slide template that included visual tools and icons that aligned with key planning concepts. Country teams used these tools to prepare visually compelling presentations that effectively communicated their new ideas. Country teams had the opportunity to send the materials they designed to graphic design teams in other time zones, who reviewed materials overnight to enhance the presentations. These approaches helped ensure that country teams could spend their time on idea generation and collaboration, and that by the workshop's end, each country team had a polished presentation to take home and share with additional country stakeholders.

Developing the facilitation guide

Objective:

Equip facilitators with the necessary tools and guidance for successful workshop delivery.

After finalizing the agenda and delivery methods, the next step is to create a detailed facilitation guide. This guide serves as a clear and consistent reference, detailing each session's objectives, content, timing, required materials, and engagement activities. The detailed session notes help facilitators manage time effectively, encourage participant engagement, and provide strategies for navigating group dynamics. The guide equips facilitators with practical tools for a successful workshop, enhancing the learning experience.

Selecting participants

Objective:

Identify and invite individuals who will meaningfully contribute to achieving workshop objectives.

The participant selection process begins with the establishment of clear criteria, focusing on expertise, organizational roles, and alignment with workshop objectives. Collaboration with stakeholders, including government representatives and other key decision makers, helps identify qualified nominees. Invitation letters are sent in advance, stating the workshop's goal, objectives, and participants' expected roles. Emphasizing the unique contributions that individuals can make, including learning and networking opportunities, facilitates alignment with workshop objectives. This approach ensures a diverse yet cohesive participant group, fostering a successful workshop experience.



Stakeholders invited to the Southern Africa Regional DCS Workshop:

- Ministry of Health – focusing on health information system (HIS) experts and community service program coordinators
- Ministry of Social Services
- Ministry of Local Government
- USAID mission HIS and community service focal persons
- Implementing partners supporting community services
- Other donors, such as the World Bank, the Global Fund to Fight AIDS, Tuberculosis and Malaria, the World Health Organization (WHO), the United Nations Children's Fund (UNICEF), etc.

Selecting facilitators

Objective:

Identify and engage skilled facilitators capable of guiding participants through the workshop activities.

Selecting facilitators involves assessing their experience with domains relevant to DCS and aligning their skills with the workshop objectives. Facilitators should be familiar with the necessary resources, like the facilitator guide and presentation materials. Collaboration among facilitators is encouraged through regular communication and planning sessions to ensure a cohesive and engaging workshop. If the workshop will involve multiple countries, consider assigning facilitators to country teams, so that country teams have support when they break out to do activities. The role of the country team facilitator is not to lead country team activities, but rather to serve as a resource, answering any questions that arise during group activities, and ensure that country teams have the support they need to succeed. Country team facilitators can also provide feedback to help workshop organizers adapt content to meet country team needs throughout the workshop. This strategic approach enhances the workshop's potential for success.



For the Southern Africa Regional DCS Workshop, the facilitators were thoughtfully selected from USAID, Digital Square, and Data.FI based on their relevant expertise and experience. The facilitators brought a wealth of experience in digital health systems design, implementation, architecture, and governance, coupled with M&E practices. Their practical experience in system development and implementation and community health services ensured a well-rounded approach.

This deliberate selection process reflected a commitment to providing workshop participants with a comprehensive learning experience, where theoretical foundations were complemented by real-world insights. Participants were able to engage with facilitators who had successfully navigated the complexities of digital health implementation, ensuring a workshop that was informative, practical, and enriching.

Daily session reviews

Objective:

Assess the effectiveness of workshop sessions for continuous improvement.

Through daily evaluations, facilitators and organizers gain valuable insights on the strengths and areas for improvement in the workshop's delivery. This process involves gathering feedback on various aspects of the workshop, such as content relevance, facilitation quality, and overall participant satisfaction.



For the SA regional DCS workshop, daily debrief meetings included review of participants feedback, reflective discussions, and iterative planning and adjustments to future sessions. This process guided the identification of areas for improvement, shaping the content and structure of the sessions scheduled for the following day. The iterative nature of this feedback loop ensured a dynamic approach, enhancing the overall effectiveness of the workshop.

Featured resources



[Concept note: Southern Africa Regional DCS Workshop](#)



[Workshop agenda template](#)



[List of printed materials to be distributed](#)



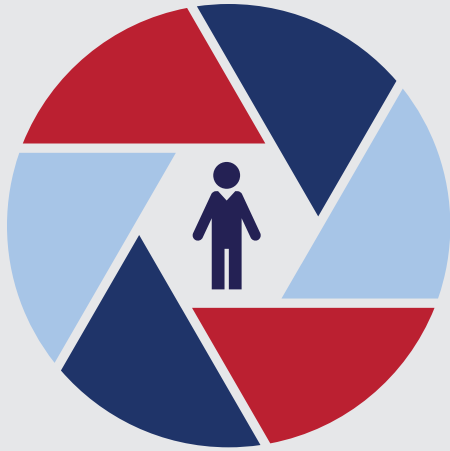
[Invitation letter template](#)



[Digital Community System Workshop Glossary of Terms](#)



[Daily and end-of-workshop evaluation questions](#)



SECTION 3:

The Person-Centered Design Processes for Digital Community Systems

Introduction

Section 3 of the DCS toolkit offers comprehensive guidance on applying a person-centered design approach to DCS development. Structured into seven phases, this section delineates the processes to be undertaken both before and during the DCS workshop. It begins with an essential pre-workshop —ecosystem assessment activity. This is followed by outlining the different modules of the workshop, including (1) understanding users, (2) defining and prioritizing use cases, (3) translating these into system functionalities, (4) setting a coherent vision, and (5) establishing metrics for ongoing monitoring and learning.

This section serves as a practical roadmap for workshop organizers and facilitators during workshop planning and preparation, offering a structured framework for navigating each phase of the design process.

PHASE I

Digital Community System Ecosystem Assessment (Pre-workshop Activity)

Summary

Before convening stakeholders to plan a DCS, it is helpful to understand the environment in which the system will operate. Conducting an ecosystem assessment can help provide insight on whether there are any existing digital systems supporting community service delivery, and the maturity of the enabling environment. It provides insights into existing technologies, stakeholders, and challenges, fostering a holistic view of the community's digital health ecosystem. By identifying gaps and opportunities, an ecosystem assessment guides targeted interventions and aligns digital initiatives with national health strategies. Ultimately, this analysis sets the stage for effective and sustainable digital community systems that address specific community needs.

A DCS ecosystem assessment is carried out by completing the Baseline Analysis Tool for the Maturity of Digital Community Health Systems (see featured resources at the end of this section) with the participation of all key stakeholders. It begins with a workshop designed for active stakeholder participation, an approach that considers diverse perspectives and fosters a holistic understanding of the current state and future aspirations of the country for DCS development and implementation.



In the Southern Africa DCS Workshop, a pre-workshop DCS maturity assessment and stocktaking of current technologies and implementation was conducted for three countries in the region. A summary of the findings of the assessment and the stocktaking exercise was presented to the broader participants group in the first day of the workshop.

Activity objectives

By the end of this activity, participants will:

- Understand the importance of carrying out an ecosystem assessment early in the development and implementation of a DCS.
- Understand the steps involved in conducting an ecosystem assessment for DCS.

Process Overview

The process below summarizes the steps involved in conducting a digital ecosystem assessment to help stakeholders understand the current DCS enabling environment.



Select and customize maturity analysis tools:

Select and customize tools to assess digital health systems' maturity, emphasizing the need for alignment with specific country contexts and iterative refinement.

TOOLS:



Maturity assessment tool

(This tool assesses the maturity of DCS by evaluating their current capabilities, identifying gaps, and providing a roadmap for future development.)



Stocktaking tool

(This tool inventories existing technologies, use cases, and the scale at which it is implemented.)



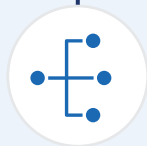
Organize the ecosystem assessment:

Focus on identifying key stakeholders across various sectors and craft a detailed agenda to guide collaborative analysis of the DCS.

TOOL:



Stakeholder identification tool



Complete maturity model:

Foster a consensus-driven process with stakeholders to score DCS maturity, using a standardized framework to ensure comprehensive evaluation. As part of the preparation, request stakeholders to complete the stocktaking tool before coming to the maturity assessment workshop.



Report (and use) ecosystem analysis findings:

Synthesize the ecosystem analysis into a strategic report that outlines the current state, challenges, opportunities, and actionable recommendations for ecosystem improvement.

PHASE 2

Understanding the User

Summary

This phase introduces a key concept for developing person-centered digital systems: user personas. Stakeholders can develop user personas outside the DCS workshop; doing so provides them the opportunity to conduct user research to ensure that personas are grounded in lived experiences. User persona development can also be a key activity for stakeholders to engage in during the DCS workshop. Developing user personas can help to ground system development work in the needs, preferences, and behaviors of real users.

KEY CONCEPTS



User typically refers to an individual or entity who interact with services at the community level both as providers and recipients/clients. Users may vary depending on the specific context of the country, but generally, they can be CHWs, social workers, clients, facility nurses, or other relevant stakeholders.

Activity objectives

By the end of this session, participants will:

- Understand the importance of creating user personas to support a person-centered design process.
- Develop detailed user personas through effective user research and iterative refinement.
- Explore the value of user personas as decision-making guides in the DCS design process.

Understanding a User Persona

A user persona is a fictional representation of a specific user segment (group of users) that describes the general background, demographics, work environment, motivations, and key challenges for various community services providers. By moving beyond statistical data, user personas can breathe life into the abstract concept of the user, fostering a deeper understanding of their responsibilities and challenges. For this toolkit, we will use the following personas to provide examples.



Zuri,
CHW



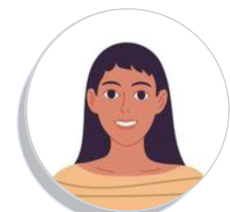
Nandi,
Facility Nurse



Tendayi,
Social Worker



Ndlovu,
Village Leader



Stella,
Client

The above graphics are available in the featured resources.

THE VALUE OF CREATING PERSONAS:

Developing user personas adds value in several ways:

- User personas keep the design process focused on real user needs.
- They describe users' traits, likes, and difficulties.
- Personas guide the team toward solutions that meet user needs.
- They help in decision making during the design process by ensuring that decisions match user expectations.



How to document your user personas

Documenting user personas involves an iterative approach. Beginning with user research, data is systematically gathered through various channels such as surveys, interviews, or analytics and used as the bedrock for creating detailed persona profiles. Persona profiles include demographic details, behavioral patterns, and aspirations.

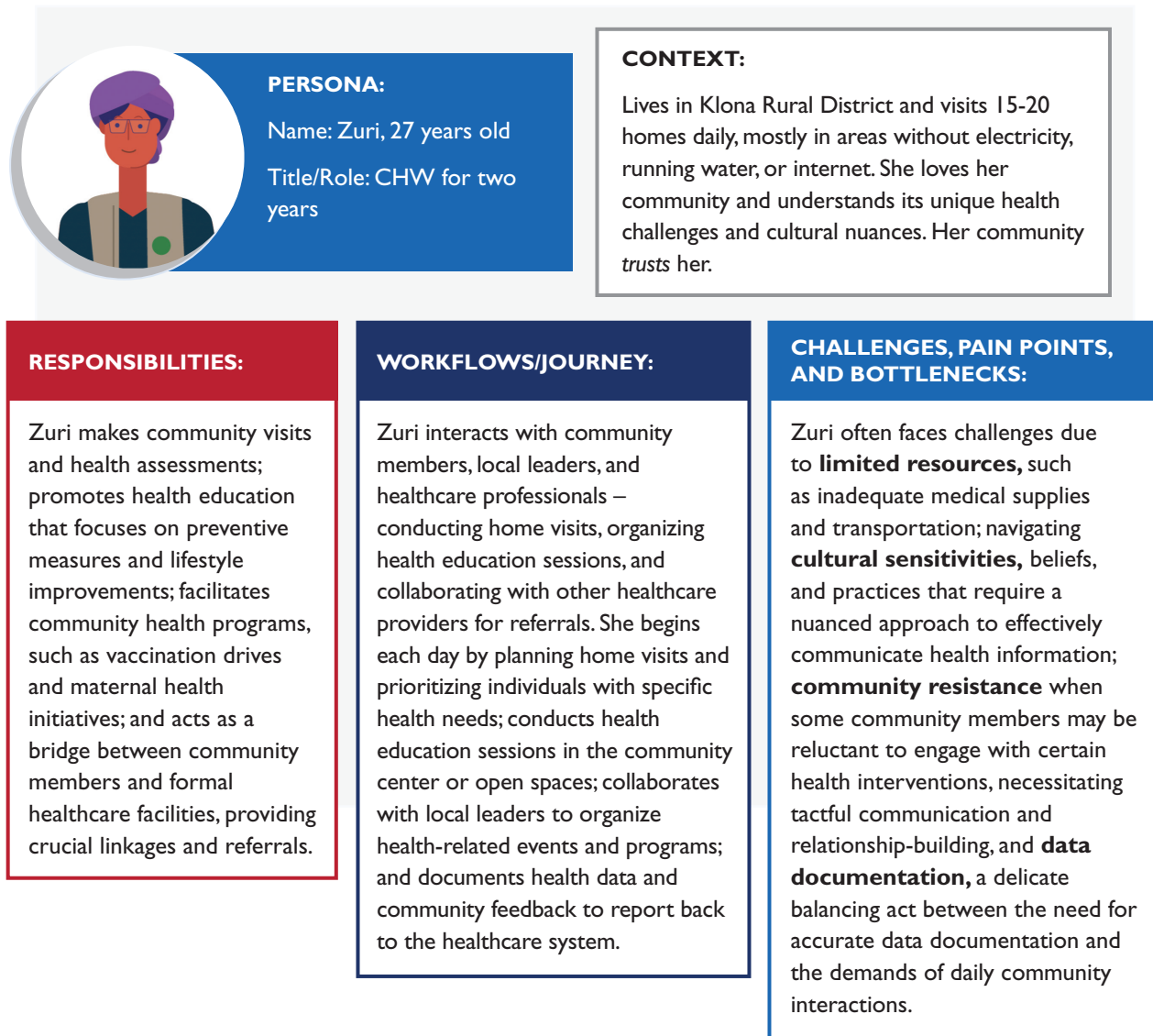
Because the process embraces iterative refinement, ongoing user feedback acts as a dynamic force, prompting continuous updates to the personas and ensuring that the personas evolve in sync with changing user dynamics, maintaining their relevance and accuracy. Figure 2 shows an example of a fictional user persona, a CHW, including documentation of her profile, preferences, and characteristics.

Persona Development Tips:

- *Conduct interviews or focus group discussions (FGDs) with relevant users to gather insights.*
- *Observe user's daily routines and challenges to inform a realistic persona.*
- *Emphasize the importance of cultural understanding and empathetic communication in the persona's characteristics.*
- *Ensure that the personas reflect the diversity and unique challenges faced by users in various settings.*



Figure 2. Description of a user persona



The number and characteristics of user personas may differ depending on the nature and set-up of the country's community service programs.

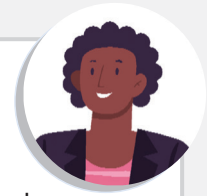
EXAMPLE

During the Southern Africa DCS Regional Workshop, the Lesotho team identified six different personas, each encapsulating unique challenges and responsibilities within the community service landscape.

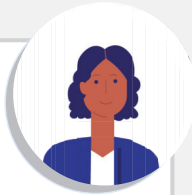
Morephe, the chief, shoulders significant societal responsibilities, from deciding gender-based violence (GBV) cases to approving social prompts and limited facilitating conflict resolution.



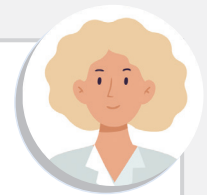
Mpho, the peer educator and sex worker, navigates the complexities of her dual role, addressing challenges such as undocumented migrant miners and access to healthcare.



Ms. Matebo, the social worker, handles vital tasks like case management and referrals, with challenges arising from difficult client access and the absence of an integrated platform for client information.



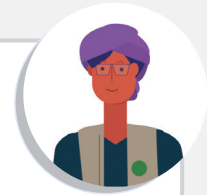
Mtate Sello, the nurse specializing in adolescent health, faces a heavy patient load, late presentations leading to high mortality, and challenges in maintaining follow-ups.



Thato Lenka, a 16-year-old DREAMS ambassador and sex worker, juggles responsibilities as the head of her household, experiencing difficulties due to the legal status of her work and delays in social grants.



Nkhono Mathabo, the village health worker, has volunteered for 25 years, contending with unstable stipends, donor-dependent funding, and shortages of essential supplies, while facing resistance from younger clients.



These personas collectively underscore the diverse and intricate community services landscape in Lesotho, emphasizing the need for tailored DCS to address their unique challenges and enhance overall community health and well-being.

GROUP ACTIVITY I

Creating User Personas

(If the DCS workshop includes a session on creating user personas, consider trying this exercise.)

Objective:

Collaboratively create detailed user personas for a DCS, considering various aspects of user interactions and stories.

Materials needed:

- Breakout rooms
- User persona template (printed)
- Flip charts and markers

Steps:

1. Divide participants into small groups and give each group several user persona templates. Have each group collectively identify as many user personas as possible. Remember, users in this instance are people who interact with services at the community level both as providers and recipients/clients. Encourage them to think through the unique stories of each user, considering their interactions with community services.
2. Ask each group to prioritize several user personas, and then use the template to outline user persona details, including things like demographic information, responsibilities, challenges, pain points, and bottlenecks.
3. Have each group add their detailed user personas to their respective group wall. Participants can use drawings, diagrams, or additional notes to enhance the visual representation of each persona.
4. Conduct a gallery walk where each group reviews the user personas created by other groups, and encourage everyone to provide feedback on the completeness and depth of the personas using sticky notes.
5. Reconvene the whole group and facilitate a discussion on commonalities and differences among the created user personas.

This group activity promotes collaboration and helps DCS stakeholders think deeply about user needs and preferences. The combination of breakout rooms, shared templates, and a group wall fosters a dynamic and interactive workshop environment.

Featured Resources:



[User persona templates](#)



[Graphics and examples](#)



PHASE 3

Defining and Prioritizing Use Cases

Summary

This phase involves identifying and prioritizing specific use cases based on the personas established in Phase 2. Use cases help explain how users and systems interact to achieve specific goals, and are key to understanding and planning DCS interactions. By mapping out the use cases, this part of the workshop can help identify any potential issues or gaps that need to be addressed, provide a better understanding of how the DCS can support users, and determine the best system design to meet user needs.

KEY CONCEPTS



A **use case** is an interaction between a user and a system to achieve an outcome. A use case can represent either what the user seeks to accomplish, or what functionalities the system must perform for the user.

Session objectives

By the end of this session, participants will:

- Understand what a use case is, and the role of use cases in shaping DCS functionalities.
- Learn how to develop use cases with selected user personas
- Gain insights into the methods for prioritizing use cases based on impact and feasibility.

Defining use cases for selected user personas:

Creating use cases for a user persona involves understanding and documenting user characteristics and needs by thoroughly studying their preferences and challenges. This process ensures that the subsequent use cases are not generic, rather are tailored to the specific needs of the selected user personas. By grounding use cases in the realities of user needs and experiences, the DCS will be fit for purpose.

After defining a use case, the next step involves creating detailed scenarios that vividly depict how users interact with the DCS across various situations. These scenarios serve as dynamic blueprints, capturing the intricacies of user engagement and system usage. Through scenario development, the design team gains invaluable insights into user behaviors, preferences, and pain points, setting the stage for a more empathetic and user-centric design.

Table 1. Sample use cases for a typical CHW

Use Case 1: Home visit and health assessment

Objective: Zuri needs to conduct a routine home visit and health assessment for Mrs. Imka, a middle-aged woman with a history of chronic illnesses.

INITIATION:	EXECUTION:	FOLLOW UP:
<ul style="list-style-type: none"> • Zuri receives a notification about Mrs. Imka's upcoming health assessment. • She prepares her health kit, including necessary equipment and educational materials. 	<ul style="list-style-type: none"> • Zuri travels to Mrs. Imka's home. • She conducts a thorough health assessment, checking vital signs, medication adherence, and overall well-being. • Zuri engages in a conversation with Mrs. Imka to understand any challenges she may be facing in managing her health. • Based on the assessment, Zuri updates Mrs. Imka's health records and flags any concerns. 	<ul style="list-style-type: none"> • Zuri schedules a follow-up visit to monitor progress and address any emerging health issues. • She provides additional health education and support as needed.

Use Case 2: Maternal health program facilitation

Objective: Zuri is responsible for organizing a maternal health program in the community

INITIATION:	EXECUTION:	FOLLOW UP:
<ul style="list-style-type: none"> • Zuri collaborates with local leaders and healthcare professionals to plan the maternal health program. • She ensures the availability of necessary resources, including educational materials and a venue. 	<ul style="list-style-type: none"> • Zuri leads the community in a maternal health awareness session, covering topics such as antenatal care (ANC), nutrition, and FP. • She facilitates discussions and addresses questions from community members. • Zuri organizes on-site services, such as blood pressure checks and distribution of prenatal vitamins. • Zuri records attendance and key insights from the maternal health program. 	<ul style="list-style-type: none"> • She schedules follow-up visits with pregnant women to monitor their progress and address any concerns. • Zuri collaborates with facility-based healthcare providers to ensure seamless referrals for prenatal care.

Table 1. Use cases for a typical CHW, continued

Use Case 3: Community vaccination campaign

Objective: Zuri is leading a vaccination campaign to ensure children in the community receive necessary immunizations.

INITIATION:	EXECUTION:	FOLLOW UP:
<ul style="list-style-type: none"> • Zuri collaborates with the local health department to organize a community vaccination drive. • She communicates with parents and community leaders to raise awareness about the importance of vaccinations. 	<ul style="list-style-type: none"> • Zuri sets up a vaccination station in a central location within the community. • Zuri generates a list of children who are eligible for vaccination within her catchment area. • She coordinates with healthcare professionals to administer vaccines to children. • Zuri provides education on the significance of vaccinations and addresses concerns from parents. • Zuri maintains records of children who received vaccinations during the drive. 	<ul style="list-style-type: none"> • She schedules follow-up visits to ensure completion of vaccine schedules. • Zuri reports vaccination coverage to the health department for M&E purposes.

The use cases in the above table illustrate the diverse responsibilities and activities that Zuri undertakes to improve the health and well-being of her community.

GROUP ACTIVITY 2

Developing Use Cases

Objective:

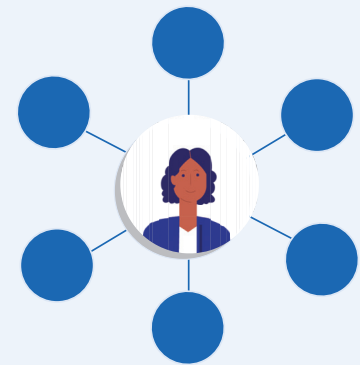
Collaboratively develop use cases for 3-4 user personas in the context of a DCS, identifying actions each user needs to perform.

Materials needed:

- Breakout rooms
- Use case development template (printed)
- Flip charts and markers

Steps:

1. Divide participants into breakout rooms and provide them with the use case development templates.
2. Instruct each group to brainstorm five to ten use cases. Next, have the group collaboratively detail the actions and steps involved in each individual use case, using the provided template. Include specific tasks, interactions and potential challenges. Detail as many use cases as possible within the allotted time.



3. Have each group add their developed use cases to a group wall (physical flip charts). Participants can use visual elements and annotations to enhance the clarity of the use cases.
4. Conduct a gallery walk where each group reviews the use cases created by other groups. Encourage participants to provide feedback on the clarity, completeness, and relevance of the use cases.
5. Reconvene the whole group and instruct each group to present one or two of their most illustrative use cases to the larger group.
6. Conclude with a reflection session, allowing participants to share their thoughts on the collaborative process and the insights gained from developing use cases and the gallery walk-through.

This group activity encourages collaborative thinking and creativity in developing use cases for various user personas within the context of a DCS and helps the design team to deepen their understanding of users' needs and responsibilities.

Prioritizing use cases:

While community service provision involves many important use cases, successful digital systems development requires focusing on key use cases to create a minimum viable product. More use cases can be added over time. Transitioning to prioritizing use cases, the focus shifts to evaluating the potential effect of each use case on the overall user experience.

The framework proposed below represents one way to prioritize use cases. It takes into consideration two variables: the impact that a use case will have on user journeys, and feasibility of the use case. When considering impact, think about how critical the use case is to community service provision and how much solving service delivery challenges related to this use case might improve user experiences. When considering feasibility, consider factors such as practicality, financial and human resource requirements, and technological needs.

The following prioritization matrix serves as a strategic tool for systematically evaluating and ranking use cases based on their anticipated impact and feasibility within a project or system. By assigning scores to each use case in these dimensions and calculating a priority score, the matrix facilitates informed decision making, guiding project teams to focus on implementing high-impact and feasible use cases.

Table 2. Use case prioritization matrix

Use Case	Impact (1-5, 5 being highest)	Impact Score Justification	Feasibility (1-5, 5 being highest)	Feasibility Score Justification	Priority Score (Impact x Feasibility)
Use Case 1	[Insert Score]		[Insert Score]		[Formula: Impact x Feasibility]
Use Case 2	[Insert Score]		[Insert Score]		[Formula: Impact x Feasibility]
...

This matrix provides a visual representation of which use cases should be addressed first, guiding the design team toward a set of use cases that not only enhances the user experience, but is also pragmatically achievable within the operational landscape of the DCS.

GROUP ACTIVITY 3

Prioritizing Use Cases

Objective:

Collaboratively complete a priority matrix to rank each identified use case in the context of a DCS, considering impact and feasibility.



Materials Needed:

- Breakout rooms
- Use case prioritization matrix (printed)
- List of use cases developed
- Flip charts and Markers

Steps:

1. Break into groups, giving each group a use case prioritization matrix to complete.
2. List all the relevant identified use cases in the first column.
3. For each use case, discuss the potential for the use case to deliver impact, and agree on an impact score (1-5) based on its potential to bring positive outcomes or benefits (a score of 5 indicates the highest impact).
4. Evaluate the feasibility of implementing each use case and assign a feasibility score (1-5). Consider factors such as technical complexity, resource requirements, and time constraints (a score of 5 indicates the highest feasibility).
5. Multiply the impact score by the feasibility score to obtain the priority score. This helps in quantifying the overall priority of each use case.
6. Sort the use cases based on their priority scores in descending order. The higher the priority score, the higher the priority of the use case.
7. Once you are finished, add the list of use cases in priority order to your group wall.

PHASE 4

Translating Use Cases to Functionalities

Summary

This phase involves turning identified use cases into tangible system functionalities, a crucial step in bridging conceptual user needs with the practical features of the DCS. Understanding and documenting system functionalities is crucial for system design, development, and evaluation.

Session objectives

By the end of this session, participants will:

- Understand what functionalities are, and their importance for designing DCS.
- Learn how to map use cases to system functionalities and design user flows.
- Explore real-world examples showcasing the translation of prioritized use cases into practical DCS functionalities.

KEY CONCEPTS



Functionality is how the digital system supports a use case. Functionalities can encompass a range of actions, from basic operations to more complex processes. It is also important to note that one functionality can support multiple use cases.

How to translate use cases to system functionalities

Translating use cases into system functionalities starts with functionality mapping, aligning use cases with the system functionalities that enable users to execute the use case. The objective is to establish a seamless and logical connection between envisioned user interactions and the backend functionalities that power these experiences within the DCS. Mapping needed functionalities helps ensure that users' needs are met, and creates a crucial input for software selection, when the design team determines what software best meets the needs of the envisioned DCS.

This process connects the conceptual with the concrete; it is the backbone of a user-centric design process, manifesting envisioned use cases into tangible functionalities to support the overall user journey.

Examples of functionalities derived from prioritized use cases

Table 3. Functionalities derived from prioritized use cases

Use Case 1: Home visit and health assessment

INITIATION:	EXECUTION:	FOLLOW UP:
<ul style="list-style-type: none"> • Notification system: The system shall deliver automated notifications to the CHW (Zuri) about upcoming health assessments. 	<ul style="list-style-type: none"> • Health assessment features: The system should allow CHWs to record vital signs and health data during home visits; it also provides access to client records for seamless care. • Decision support integration: The system includes decision support for CHWs based on collected health data, aiding in informed decision making during visits. • Communication platform: The system supports secure communication between users and participants for confidential information exchange and scheduling. • Health record update: The system shall enable real-time updating of health records, with the ability to flag any health concerns for follow-up. 	<ul style="list-style-type: none"> • Appointment scheduling: The system shall allow users to schedule follow-up visits for program participants, ensuring timely monitoring, support, and referrals when necessary. • Referrals: The system will allow users to digitally refer clients to clinics or other social services to ensure that the referred client receives comprehensive care as needed. The referral service should be facilitated by digital exchange of messages and data between the service providers.

Use Case 2: Maternal health program facilitation

INITIATION:	EXECUTION:	FOLLOW UP:
<ul style="list-style-type: none"> • Collaboration hub: The system will provide functionality for coordinating with local leaders and healthcare professionals for program planning purposes. • Resource management: The system will enable users to manage resources, ensuring the availability of educational materials, required health commodities, and suitable venues for program activities. 	<ul style="list-style-type: none"> • Community engagement features: The system will enable users to conduct virtual or in-person maternal health awareness sessions, providing a platform for discussions and Q&A. • Review of individual patient records: The system should allow for the seamless monitoring of ANC visits and other important milestones in maternal health care through comprehensive review and analysis of individual patient records, ensuring timely interventions and personalized care. • On-site services coordination: The system will facilitate the coordination of on-site services, such as blood pressure checks and the distribution of prenatal vitamins. • Attendance tracking: The system will record attendance and key insights from the maternal health program for future reference. 	<ul style="list-style-type: none"> • Follow-up visit scheduling: The system will facilitate the scheduling and management of follow-up visits, maintaining continuity in maternal health support (including sending text reminders for the follow-up visit).

Use Case 3: Community vaccination campaign

INITIATION:	EXECUTION:	FOLLOW UP:
<ul style="list-style-type: none">• Community outreach and education: The system shall support to disseminate information about the vaccination campaign, including its purpose, target population, vaccine availability, and benefits.• Logistics planning: The system should support planning and coordinating the logistics of vaccine distribution and administration across various vaccination sites	<ul style="list-style-type: none">• Education platform: The system will provide educational content about the importance of vaccinations, addressing concerns, and answering questions.• Vaccination record keeping: The system records children who receive vaccinations during the drive, maintaining a centralized database for M&E.	<ul style="list-style-type: none">• Follow-up visit management: The system will support the scheduling and management of follow-up visits, ensuring that children complete their vaccine schedules

These system functionalities align with the core activities performed by the CHW enhancing her effectiveness in delivering community health services. They cover aspects of communication, collaboration, data recording, and follow-up, reflecting the diverse responsibilities of a CHW.

GROUP ACTIVITY 4

Translating Use Cases to Functionalities



Objective:

The objective of this activity is to identify and develop a list of functionalities aligned with each use case.

Materials Needed:

- Breakout rooms
- List of use cases with a template for adding functionalities (printed)
- Flip charts and markers

Steps:

1. Divide participants into breakout rooms and assign each group one or more prioritized use cases to work on.
2. Instruct each group to identify and list specific system functionalities aligned with the assigned use case(s).
3. Have each group share their list of system functionalities on a group wall.
4. Ask participants to review and provide feedback, suggestions, and comments on the group wall using sticky notes for further refinement.

Featured Resources



[Examples of functional specifications](#)

PHASE 5

Strengthening Governance to Support Integrated, Person-Centered DCS

Summary

Governance is key to developing and maintaining DCS. For integrated DCS, governance requires both formal and informal institutional structures and processes that bridge sectors relevant for community services. These mechanisms serve as vital frameworks, offering leadership, direction, and stakeholder coordination for DCS initiatives and stakeholders.

Session Objectives

By the end of this session, participants will:

- Understand the critical role of governance in maintaining a person-centered design approach.
- Recognize the importance of aligning governance with broader organizational strategies and adhering to relevant policies and regulations.

KEY CONCEPTS

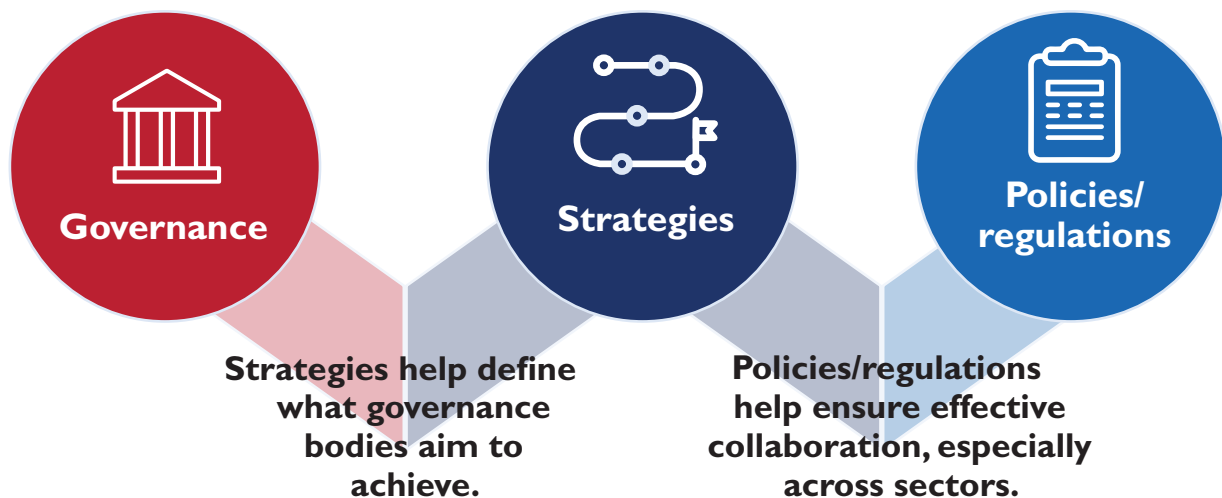


Governance refers to the formal and informal institutional structures and processes that provide leadership, direction, and stakeholder coordination of digital health efforts.

Strategies serve as general frameworks for planning and coordinating various national initiatives.

Policies are generally rules and norms established by institutions (e.g., ministries). Regulations are typically instruments that map out how laws will be implemented. Both policies and regulations help establish what gets done and how.

Figure 3. Governance, strategy, and policies/regulations



Why governance matters:

Governance is crucial for a person-centered, integrated DCS, as it provides a mechanism for ensuring alignment with key goals, facilitating buy-in, and fostering integration across sectors. Governance also establishes communication channels and norms, and other coordination/collaboration mechanisms, across stakeholders, and can steer DCS to prioritize individual needs and promote inclusivity. It also facilitates collaboration among diverse stakeholders, such as health, education, social services, community leaders, and technology developers, fostering a cohesive approach to design that reflects a holistic understanding of community dynamics.

Figure 4. Governance facilitates collaboration and accountability

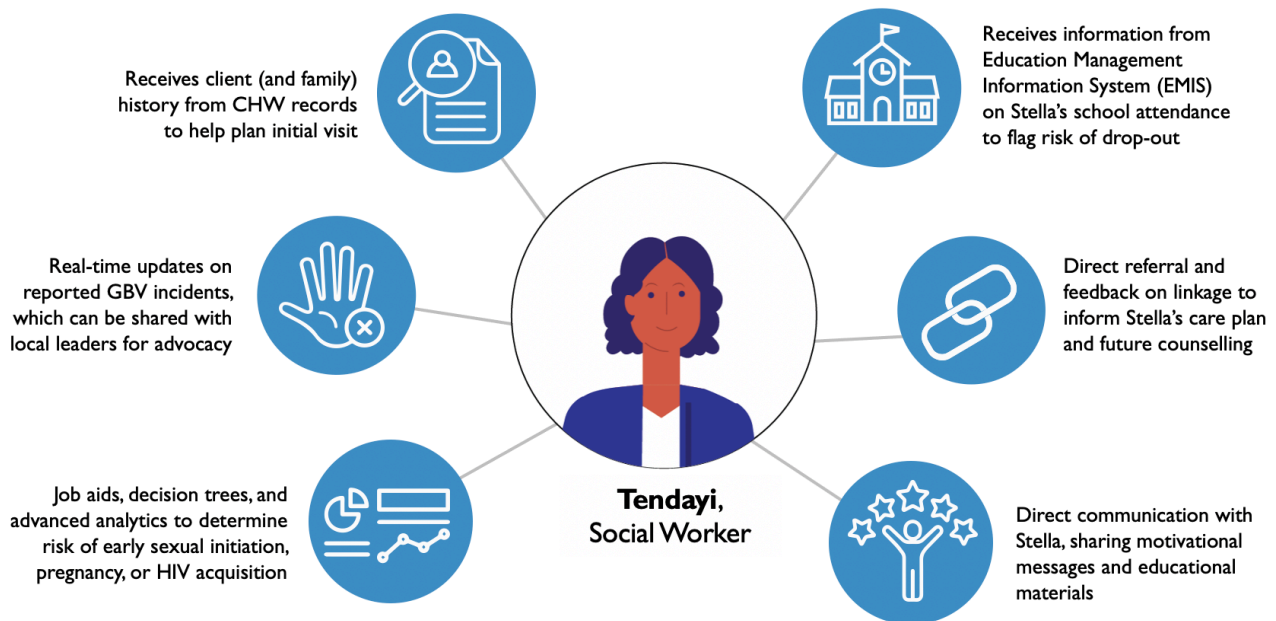
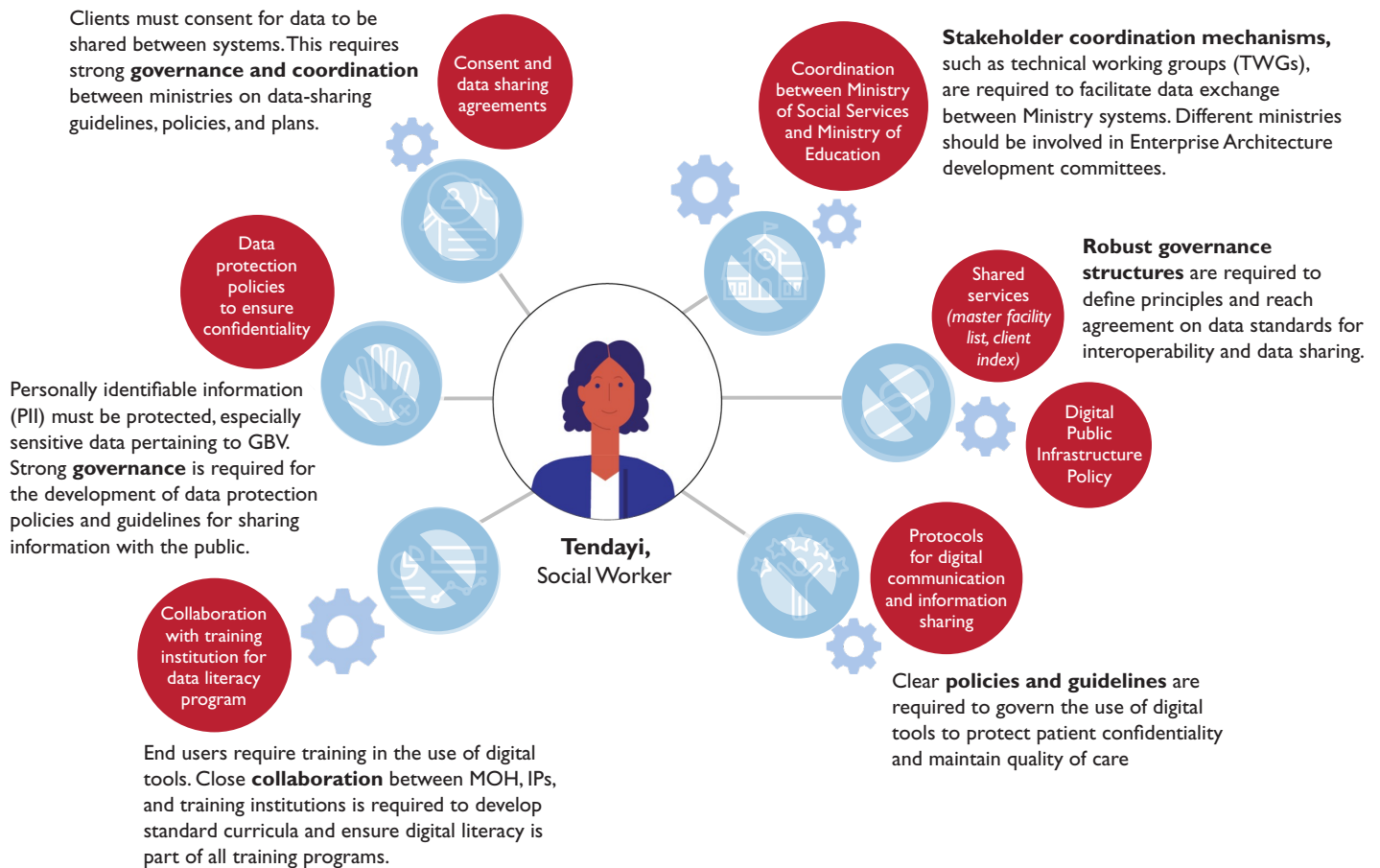


Figure 4 illustrates activities that our social worker user persona, Tendayi, needs to do for her job. A DCS can be a great aid to her in doing her job, but without appropriate governance structures, setting the DCS up for success is difficult, if not impossible. As Figure 5 illustrates, without digital health and data governance systems in place, it becomes challenging or impossible to effectively develop digital functionalities to support use cases for DCS users. This graphic illustrates how, without effective governance, DCS fail to live up to their potential to support effective service provision.

Figure 5. The importance of governance, collaboration, and coordination to realize the future state



The figures above outline the pivotal role that strong governance play in realizing the potential that DCS can delivery for community services:

- Stakeholder coordination mechanisms:** Governance requires structures to facilitate collaborative planning, implementation, and M&E of DCS. Involvement of different ministries and other organizations that have stake in DCS in planning and implementation process and its governance ensures a comprehensive and collaborative approach.
- Interoperability and data standards:** Robust governance structures are essential to define principles and achieve consensus on data standards for interoperability and data sharing. This ensures a standardized and harmonized approach across ministries, promoting effective data exchange.

- User training and digital literacy:** Governance mandates close collaboration between the government ministries and agencies responsible for community services, implementing partners, and training institutions to develop standard curricula and incorporate digital literacy into training programs. This ensures end-users are well-equipped to utilize digital tools effectively.
- Protection of personally identifiable information:** Strong governance is paramount in the development of data protection policies and guidelines, particularly concerning sensitive data, such as data related to GBV. This guarantees the highest standards of confidentiality and ethical data handling.
- Client consent policies for data sharing:** Governance plays a critical role in coordinating ministries to establish guidelines, policies, and plans for data sharing. This ensures that clients' consent is obtained, maintaining transparency, trust, and ethical considerations in the exchange of information between systems.

GROUP ACTIVITY 5



Understanding Current Governance Structures and Planning for the Future

Objective:

The objective of this activity is to map and assess current governance structures, identify challenges and opportunities, and envision a future state governance structure to support a DCS.

Materials Needed:

- Breakout rooms
- A template for assessing the current state governance and planning for the future (printed)
- Information on the current governance structure and systems
- Flip charts and markers

Steps:

1. Divide participants into breakout rooms and instruct each group to consider the current state of governance, identifying existing bodies, mechanisms, strategies, policies, and regulations relevant to digital community services.
2. Instruct each group to discuss how the current governance, strategy, and policy/regulation framework is functioning; identify obstacles and areas for improvement and share insights on challenges and opportunities within the group. Ask each group to map out the current governance structure based on their discussions and consider existing strategies and policies in the mapping process.
3. Instruct each group to discuss and envision the ideal future state of governance, strategy, and policy/ regulation for the DCS, considering a 3- to 5-year timeline. Ask each group to add missing components to the current governance structure based on their vision for the future and discuss any changes or additions that would strengthen the governance framework.
4. Have each group share their findings on a group wall, detailing the current and future governance structures.
5. Conduct a gallery walk where each group review the future governance structures.

Featured Resources



[Governance analysis and planning templates](#)

PHASE 6

Set Your DCS Vision

Summary

In this phase, participants will articulate the overarching vision for the DCS, aligning it with the insights gained from earlier phases.

Session Objectives

By the end of this session, participants will:

- Articulate a clear and compelling vision for the DCS aligned with insights gained from previous phases and key sectoral priorities.
- Learn how to develop a country DCS vision statement.

KEY CONCEPTS



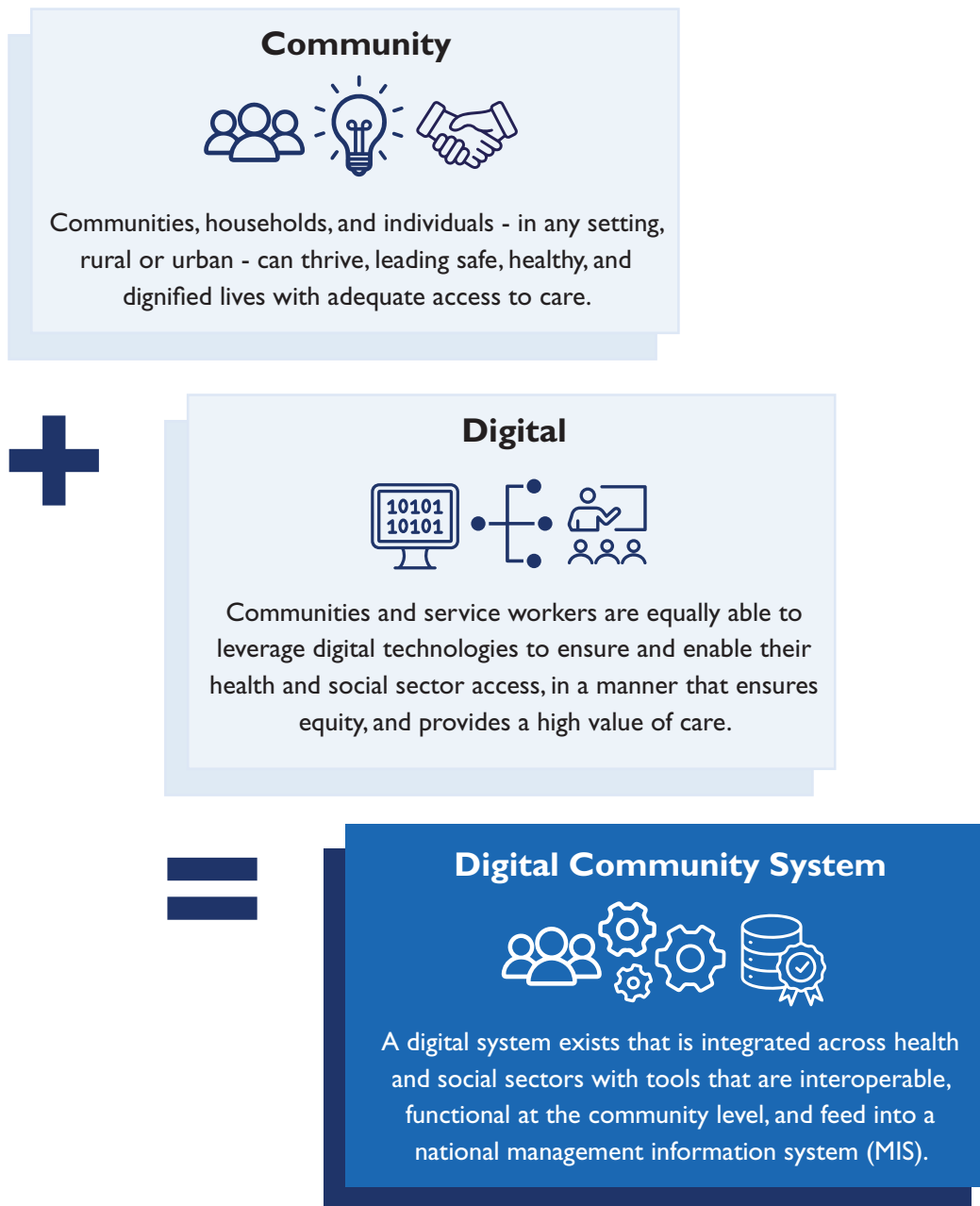
A **vision** is a clear and compelling statement of what your DCS will achieve (i.e., goals) in the future. It guides your strategic decisions, aligns your team, and inspires your stakeholders.

The visioning process

The visioning process starts with defining a statement that captures the desired future state of the DCS. It is important to note that a vision is meant to be a galvanizing and motivating force.

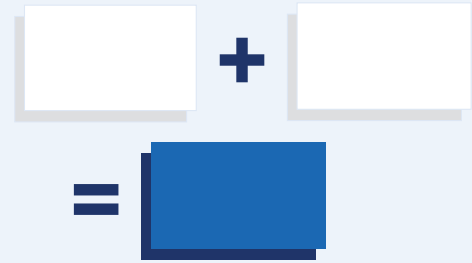
The best approach is to start with the country's vision for the community system and the service delivery elements needed, then craft a vision for the digital system or if the country has a digital strategy, you could also leverage any vision statements included there to inform the DCS vision, and lastly, put those together into a full vision statement. Figure 6 demonstrates this process.

Figure 6. Example of a visioning process for DCS



GROUP ACTIVITY 6

Setting Your DCS Vision



Objective:

Collaboratively develop a vision statement for the DCS, aligning it with the broader country digital vision and specific community service delivery elements.

Materials Needed:

- Flip charts or whiteboard
- Markers
- Sticky notes
- Printed copies of country's visioning template

Steps:

1. If this is a multi-country convening, divide into country teams, supplying each team with a vision template. If the convening is focused on the DCS for one country, break into smaller groups.
2. Instruct each group to discuss and extract key elements that relate to the community services. Have them identify values and goals, including goals articulated in key strategic and policy documents.
3. Instruct each group to discuss and extract key elements that relate to country's digital vision. Have them identify values and goals, including goals articulated in key strategic and policy documents.
4. Have each group create a vision statement for the DCS based on the insights gathered from the country's vision for community service delivery and digital technologies.
5. Post each vision statement on the wall for a gallery walk. Participants can review and provide anonymous feedback using sticky notes.
6. If there was more than one group working on a vision statement for the same country, facilitate a discussion to synthesize the best aspects of each vision statement into a comprehensive draft for the DCS.
7. Conclude with a reflection session, allowing participants to share thoughts on the collaborative process and the country vision for DCS.

This group activity encourages participants to connect the DCS vision with the broader country digital vision and specific community service delivery elements, fostering a comprehensive and aligned vision statement for the DCS.

PHASE 7

Create Metrics for Monitoring and Learning

Summary

This phase emphasizes the significance of adaptive management approaches, continuous monitoring and learning to ensure that the DCS can continue to meet user needs, document and support improved outcomes, and evolve over time.

Session objectives

By the end of this session, participants will:

- Recognize how adaptive management approaches can support DCS and the programs they support.
- Understand the DCS theory of change.
- Learn how to develop and prioritize key performance indicators (KPIs) for effective monitoring and learning.

KEY CONCEPTS

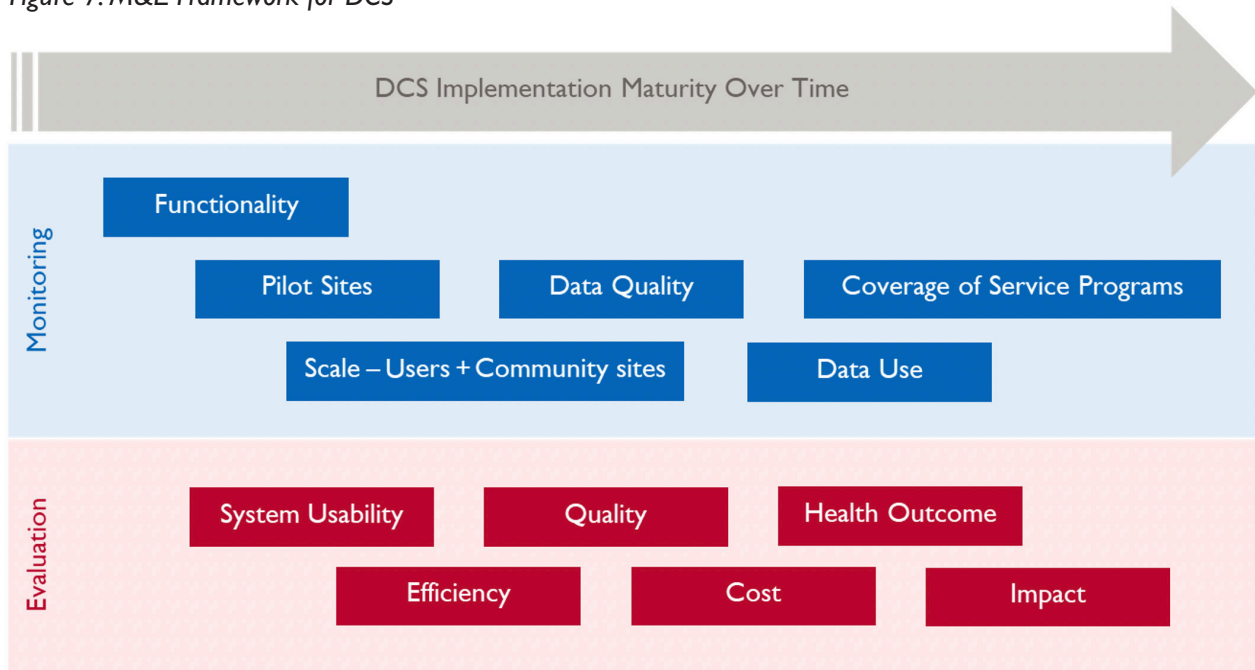


Adaptive management, a dynamic and responsive approach to project implementation, involves making informed decisions and adjustments based on new information and changing contextual factors. It does not entail altering overarching goals during implementation; rather, it focuses on modifying the strategies and pathways employed to achieve those goals in response to evolving circumstances.

A **theory of change** is a comprehensive description and illustration of how and why a desired change is expected to happen in a particular context.

Key performance indicators are specific and measurable metrics used to evaluate the performance of the DCS against predefined objectives or goals.

Figure 7. M&E Framework for DCS



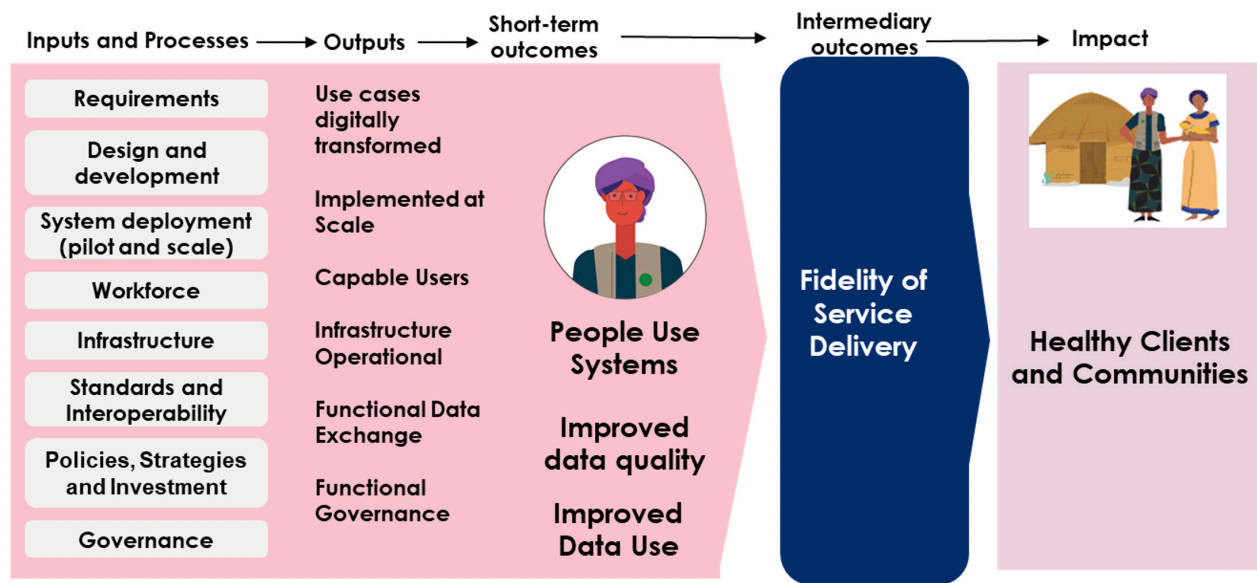
Source: Adapted from WHO M&E Framework for Digital Health Interventions

Figure 7 is adapted from WHO’s M&E framework for digital health interventions, which is applicable to the DCS development and implementation lifecycle. The image maps stages of DCS development and implementation, noting areas for monitoring, and areas to be evaluated.

Monitoring and learning processes – DCS theory of change:

The sample theory of change in Figure 8 maps how a DCS could contribute towards supporting healthy clients and communities. It is important to develop a theory of change that maps how a DCS will contribute towards impact, as this will help identify areas for M&E, and key inflection points where data from monitoring can be used for adaptive management to iteratively improve both the DCS and the community service programs it supports. However, it is important to consider how a DCS can also address outcomes beyond health by capturing the interests of various community services stakeholders and demonstrating its broader value.

Figure 8. DCS theory of change



While attributing some impacts—like health impacts for example—to digital systems can be difficult, it can be helpful to measure short-term and intermediary outcomes that result from implementing DCS. Reasons for this include the following:

- Measuring outcomes aids in accountability and transparency. It enables country stakeholders to demonstrate how the DCS contribute to the sectoral goals and objectives. This transparency builds trust among funders, partners, and the community, fostering a sense of confidence in the effectiveness and efficiency of the invested resources.
- Measuring outcomes, especially short-term outcomes, provides a valuable input to support adaptive management. Metrics that can help assess short-term outcomes are often easy to access from a DCS, and can be provided on a regular basis. This allows for timely adjustments to the DCS or the overall community service initiative to help support high-quality service provision.
- Measuring outcomes and impact provides insights into can provide insights into the value of the DCS and areas for improvement. Understanding how these systems do or do not create lasting positive changes within the community helps organizations make informed decisions about scaling, replicating, or adapting their initiatives for broader impact.

Selecting and prioritizing indicators for monitoring and learning:

The best approach for selecting and prioritizing indicators for the M&E of DCS involves a systematic and thoughtful process to ensure relevance, feasibility, effectiveness, and the ability to demonstrate impact.

Here's one recommended approach:

- Focus on indicators that are linked to objectives:** Identify and prioritize KPIs that are most critical to assessing the success of the DCS. It can be helpful to refer to a theory of change to understand assumptions about what interventions will cause what outputs and consider how to measure the outputs.
- Ensure measurability and data availability:** Select indicators that are measurable and for which reliable data can be easily and regularly obtained. For example, consider the kinds of data that may be automatically available through the DCS, as this ensures that the M&E process is practical and provides meaningful and timely insights for adaptive management.
- Align with impact and outcomes:** Ensure that selected indicators measure the outcomes that the DCS aim to achieve. This alignment enhances the ability to demonstrate the value and effectiveness of the interventions.
- Consider sensitivity to change:** Choose indicators that are sensitive to changes resulting from the implementation of DCS, as this sensitivity enhances the ability to attribute observed changes to the interventions.
- Regularly review and update indicators:** The digital landscape and community dynamics evolve, so regularly review and update indicators to ensure they remain relevant and aligned with the changing context and community services goals.
- Establish baselines:** Establish baseline data for selected indicators before the implementation of DCS, as this baseline provides a reference point for measuring changes and impact over time.
- Promote participatory M&E:** Encourage community participation in the M&E process. This not only ensures a more comprehensive understanding of impact but also empowers the community to take an active role in assessing their own development.

By following this comprehensive approach, countries can select and prioritize indicators for M&E, enhancing the overall effectiveness and accountability of DCS. It's crucial for stakeholders to consider the transformative effects that digitalizing service delivery workflows can have on data management and quality assessments. As workflows shift towards digital platforms, the way data moves throughout the system changes significantly. Therefore, when assessing data quality and devising measurement strategies, it is important to recognize that there may be fewer or no paper records to compare digital records to. This prompts a need for innovative approaches to ensure the accuracy and reliability of digital data in supporting decision-making processes.

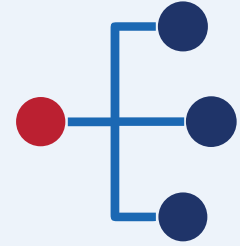
Monitoring plan and timelines

Developing a monitoring plan and timelines for DCS involves a systematic approach to ensure that the monitoring process is well-structured and aligned with project goals. After selecting indicators, the steps below can help guide M&E plan development.

- Establish baselines:** Gather baseline data for selected KPIs before the implementation of the DCS, as this initial data provides a reference point for measuring changes and impact over time.
- Determine monitoring frequency:** Define the frequency of monitoring activities. Some indicators may require continuous real-time monitoring, while others may be assessed periodically.
- Clarify data collection methods:** Specify the methods and tools for data collection. This could include surveys, interviews, FGDs, and data analytics from digital platforms. Ensure that these methods align with the nature of the data to be collected. Also, ensure that data collection plans are feasible, and do not overburden human or financial resources.
- Assign responsibilities:** Clearly define roles and responsibilities for individuals or teams involved in the monitoring process. This includes those responsible for data collection, analysis, and reporting.
- Establish data management protocols:** Develop protocols for data management, including data storage, security, and confidentiality. Ensure compliance with relevant data protection regulations.
- Create a monitoring timeline:** Develop a timeline that outlines the schedule for monitoring activities. This timeline should include key milestones, data collection periods, and reporting deadlines.
- Incorporate evaluation components:** Integrate evaluation components into the monitoring plan. This could involve conducting periodic evaluations to assess the overall effectiveness and intermediary outcomes of the DCS.
- Develop an adaptive management approach:** Establish a regular cadence for reviewing monitoring data with all relevant stakeholders and decision makers and make adjustments to iteratively improve DCS and program implementation.
- Review and adjust:** Periodically review the monitoring plan and timelines to ensure they remain aligned with community services goals and the evolving needs of the community. Be prepared to adjust the plan based on feedback and changing circumstances.
- Document and communicate:** Document the monitoring plan comprehensively, including all components such as objectives, indicators, methods, and timelines. Communicate the plan to relevant stakeholders to ensure everyone is on the same page regarding monitoring activities.

GROUP ACTIVITY 7

Developing M&E framework for DCS



Objective:

The goal of this group activity is to collaboratively select, prioritize, and develop M&E indicators for a country DCS development and implementation program.

Materials needed:

- Flip charts and markers
- Sticky notes
- Printed M&E plan template

Steps:

1. Divide participants into small groups and brainstorm potential indicators for DCS implementation.
2. Consolidate similar indicators on a flip chart to create a unified list.
3. Have participants discuss the indicators they believe are the most important and relevant, and facilitate a discussion to prioritize the top indicators, using factors such as feasibility, importance, and measurability.
4. Complete the M&E plan, including data collection methods, frequency, responsible parties, and potential challenges.
5. Each group presents their prioritized indicators and outlines for the M&E plan to the larger group. Encourage feedback and discussion among participants.
6. Conclude the activity with a reflection session. Ask participants to share their thoughts on the process and discuss any challenges faced.

This group activity promotes collaboration, creativity, and consensus-building in the selection, prioritization, and development of monitoring and evaluation plan for DCS implementation.

By following these processes, countries can create a robust monitoring plan and timelines for DCS, enabling adaptive management, effective tracking of progress, timely identification of challenges, and informed decision making.

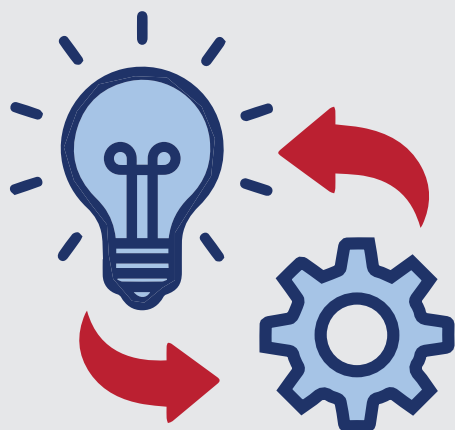
Featured Resources



[M&E plan template](#)



[Example list of indicators from the Southern Africa DSC workshop](#)



SECTION 4:

Translating Ideas into Technical Realities

Summary

This section provides guidance on how to translate conceptual frameworks into tangible digital solutions to support service delivery at the community level. Some key DCS functionalities rely on the ability to seamlessly exchange data with other systems. This phase focuses on explaining key technical approaches to support effective DCS, ensuring that data interoperability and integration are prioritized to enhance the overall functionality of digital solutions.

Session objectives

By the end of this session, participants will:

- Explore the relationship between DCS and national digital health architectures, other relevant national enterprise architectures.
- Understand the importance of digital standards for seamless data exchange and interoperability.
- Develop a systematic approach for selecting platforms/products for DCS initiatives.
- Manage key aspects of product development and implementation, including team organization, roadmap development, deployment strategies, end-user training, device management, and monitoring mechanisms.

KEY CONCEPTS



National Digital Health Architecture is the convergence of business processes, data, standards, digital health applications, and workflows that support a government's health system needs (also referred to as 'business objectives') and enable interoperability. National digital health architectures are often depicted in country planning documents as a visual diagram accompanied by descriptions of the technical specifications necessary for implementation of the desired functionalities, capabilities and services.

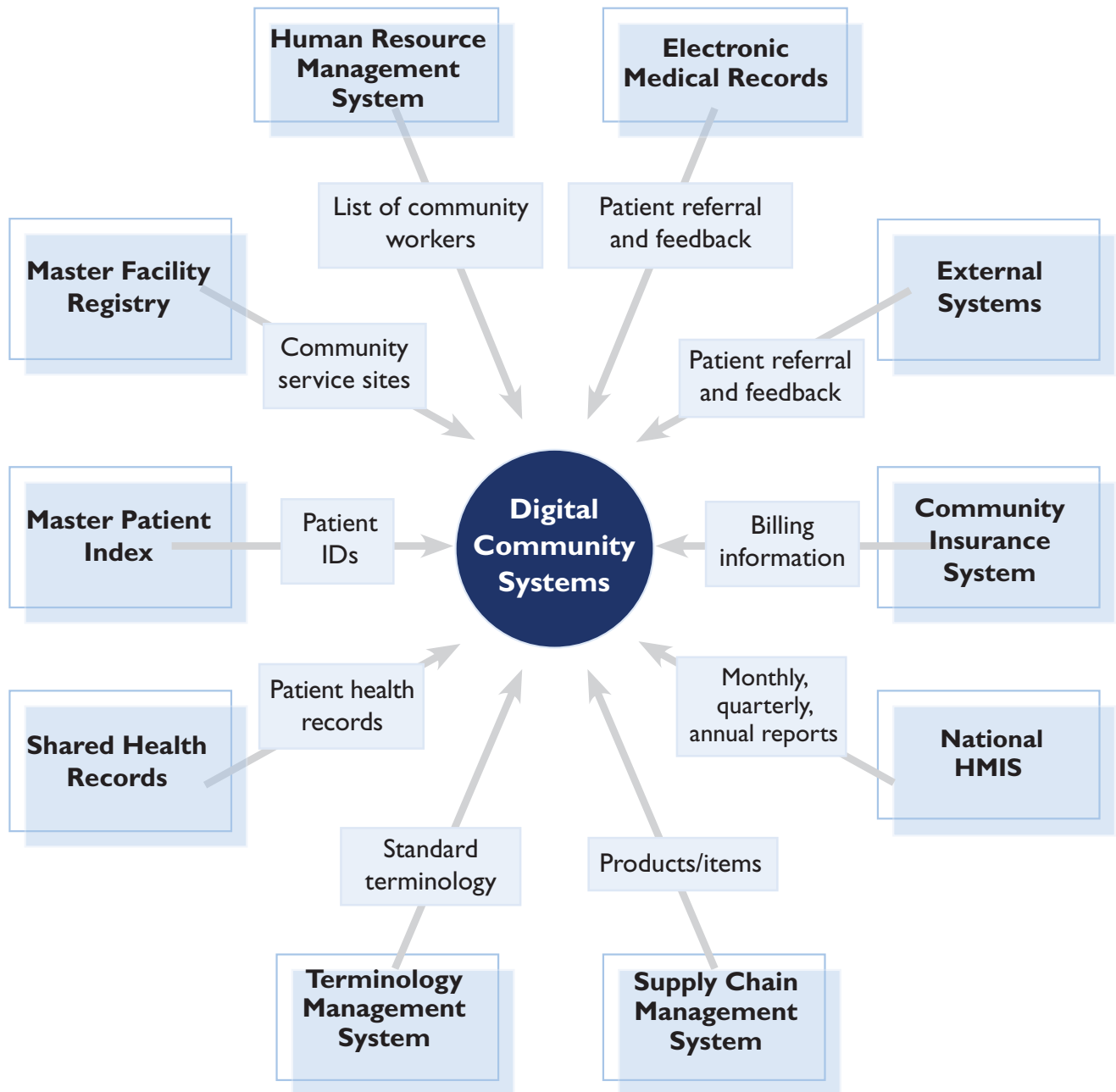
Interoperability is the ability of multiple digital systems, software applications, and devices to communicate with one another by **accessing, exchanging, and making use** of data *in a standardized and systematic way*.

Standards are documented, reusable agreements on representation, format, definition, structuring, tagging, transmission, manipulation, use, and management of information. *Interoperability is achieved through the use of standards.*

National digital architecture and DCS

In this section, we examine how DCS fit within national digital health architectures. Our examples primarily focus on interactions within health-related systems. However, the principles and frameworks discussed here can be extrapolated to other sectors. Figure 9 depicts common ways in which DCS interact with other systems within the national digital health architecture.

Figure 9. Illustrative diagram that shows data sharing with DCS



- **Health information exchange:** DCS are often integrated in health information exchange (HIE) networks. HIE facilitates the electronic sharing of health-related information among healthcare providers, public health agencies, and community organizations. DCS contribute to HIE by providing localized health data and client-level information as part of a comprehensive health information network.
- **Health management information system:** In some countries, DCS are integral components of the health management information system (HMIS). The HMIS is a centralized platform that aggregates health data from various sources. DCS contribute community-level data, providing insights

on local health trends and enabling a more holistic view of the national health landscape.

- **Public health surveillance systems:** In some countries, DCS contribute to public health surveillance systems. These systems monitor and analyze health data to detect and respond to disease outbreaks, assess population health trends, and support evidence-based decision making at the national and subnational levels.
- **Community information networks:** DCS may participate in or contribute to community information networks. These networks focus on localized information exchange and coordination among community service providers, public service agencies, and community organizations.
- **Government data portals:** In some cases, DCS may connect to or be part of government data portals. These portals serve as centralized platforms for accessing public information, resources, and services, providing an integrated data access point for citizens and service providers.

Adopting digital standards

Standards play a crucial role in facilitating seamless data exchange among digital systems by ensuring consistency. In the context of DCS, interoperability and data standards are essential for ensuring seamless communication and exchange of client information among various community-based service providers, organizations, and platforms. Here's how standards apply:

1. **Interoperability standards:** In a DCS, interoperability standards specify the technical requirements and protocols necessary for different community health platforms and systems to communicate effectively with each other. These standards enable CHWs, clinics, hospitals, and public health agencies to share patient data, care plans, and health information seamlessly. For example, interoperability standards like Health Level Seven International (HL7) and Fast Healthcare Interoperability Resources (FHIR) (see below) define common data formats, application programming interfaces (APIs), and messaging standards, allowing community health systems to exchange information regardless of the specific software or technology being used.
2. **Data standards:** Data standards are crucial for ensuring consistency and interoperability of health information in a DCS. These standards define how health data are structured, coded, and represented, making it easier for different community health platforms to interpret and exchange information accurately. Data standards in a DCS cover various aspects of health data, including patient demographics, clinical observations, diagnoses, treatments, and outcomes. For instance, standardized coding systems like the Systematized Nomenclature of Medicine – Clinical Terms (SNOMED CT) and Logical Observation Identifiers Names and Codes (LOINC) ensure that community health data are categorized and coded uniformly, enabling efficient exchange and aggregation of information across different systems and settings.



By adhering to interoperability and data standards, DCS can enhance care and service coordination, support population health management, and improve outcomes for individuals and communities. These standards enable community service providers to access comprehensive and timely information, leading to more informed decision making, better continuity of care and service provision, and ultimately, improved health and well-being in the community.

Fast Healthcare Interoperability Resources

FHIR is a widely adopted standard for exchanging healthcare information electronically. Developed by HL7, FHIR leverages modern web technologies to enable seamless data exchange among healthcare systems, applications, and devices. FHIR's flexibility and scalability make it a strong choice for interoperability in digital healthcare ecosystems. FHIR can enhance DCS by:

- Standardizing data exchange for seamless communication among stakeholders.
- Facilitating efficient data sharing with structured formats to foster collaboration.
- Prioritizing patient-centric data, empowering personalized care delivery.
- Allowing for flexible adaptation to community needs through modular design.
- Facilitating the seamless amalgamation of mobile health applications and technologies into the workflow of community workers through the utilization of standardized data exchange protocols.
- Simplifying development with standardized APIs, promoting innovation.
- Efficiently representing data in a structured approach, which entails organizing healthcare data into discrete units for easy management and exchange.
- Ensuring security and privacy of community health data, maintaining trust.

WHO SMART Guidelines

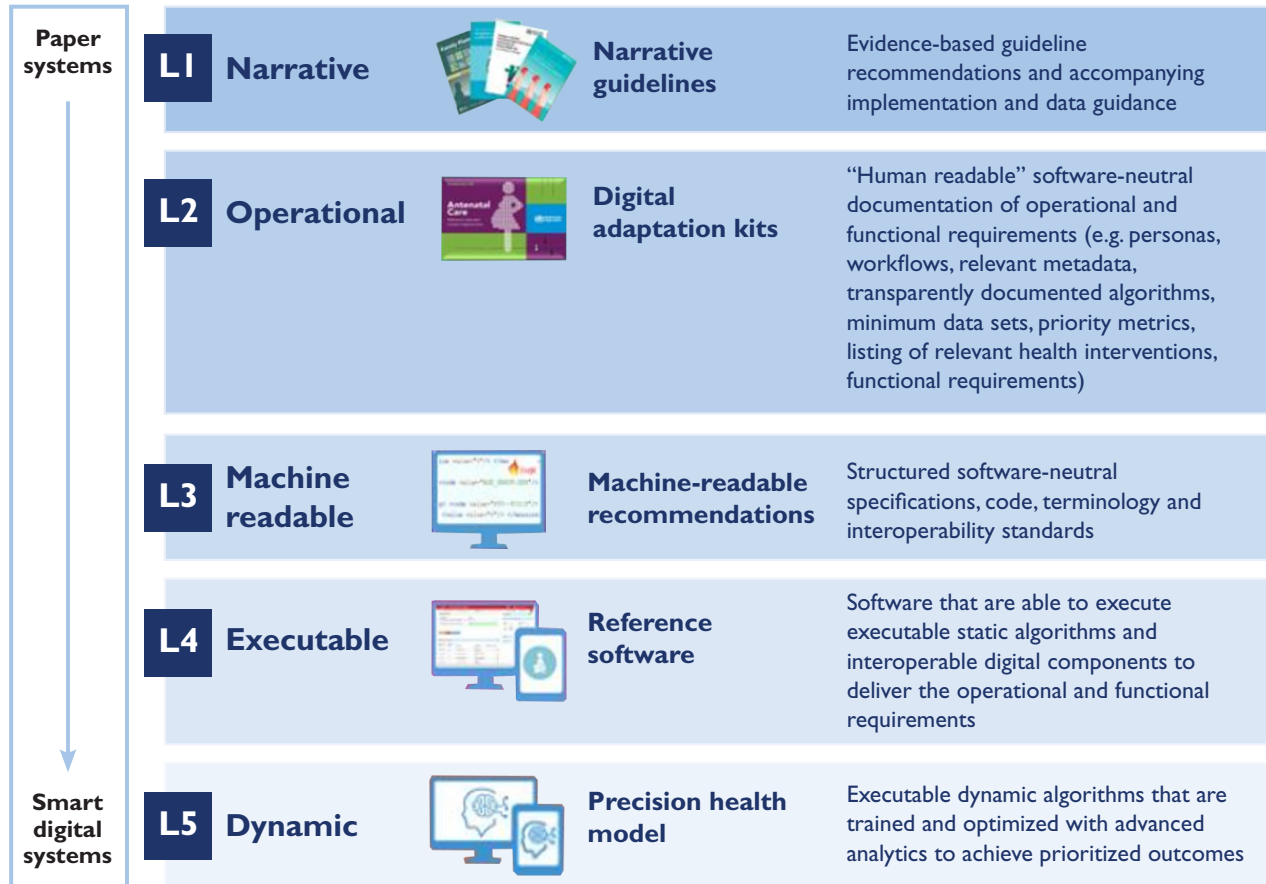
The WHO Standards-based, Machine-readable, Adaptive, Requirements-based, and Testable (SMART) guidelines provide guidance for the localization and implementation of WHO's health guidelines through digital platforms. SMART guidelines offer a set of reusable digital health components, such as interoperability standards, code libraries, algorithms, and technical and operational specifications that support countries in adapting and implementing WHO clinical guidelines. The guidelines consist of five layers, including documentation, procedures, and digital health components (see Figure 10).

The SMART guidelines are designed to be software-neutral, allowing adaptation for various software platforms chosen by countries. The key benefits of implementing SMART guidelines include enhanced efficiency and accuracy in adopting WHO health and data recommendations through digital systems. Additionally, they offer reference materials to support key processes in the DCS development process, including things like business processes and workflows, decision support logic, and reference requirements gathering documentation.

By adopting the SMART Guidelines, countries can establish standards-based and interoperable digital health systems. This results in the ability to share accurate data and contribute to more robust and

sustainable HIS. The SMART guidelines play a crucial role in improving the quality of health content in digital systems, ensuring consistent and standardized data collection across different geographic regions. Moreover, they facilitate appropriate decision support and the calculation of indicators.

Figure 10. Progressive layers across the WHO SMART Guidelines



The importance of well-documented requirements

Specifications detail the functionality of the software. They are used to define evaluation criteria for selection. Specifications allow for easy comparison of the software you are considering and facilitate more accurate selection. They also support implementation validation. Well-documented specifications for the implemented software reduces reliance on developers who initially created the software tool.

Platform/product selection processes

In the dynamic landscape of digital investments, the platform/product selection process plays a pivotal role in determining the success of a country’s DCS initiative. To navigate this process effectively, it is essential to follow a systematic approach that involves clearly defining the functional and non-functional requirements, developing checklists to evaluate products against, evaluating available platforms/products and their strengths and weaknesses, and ultimately, selecting a platform/product.

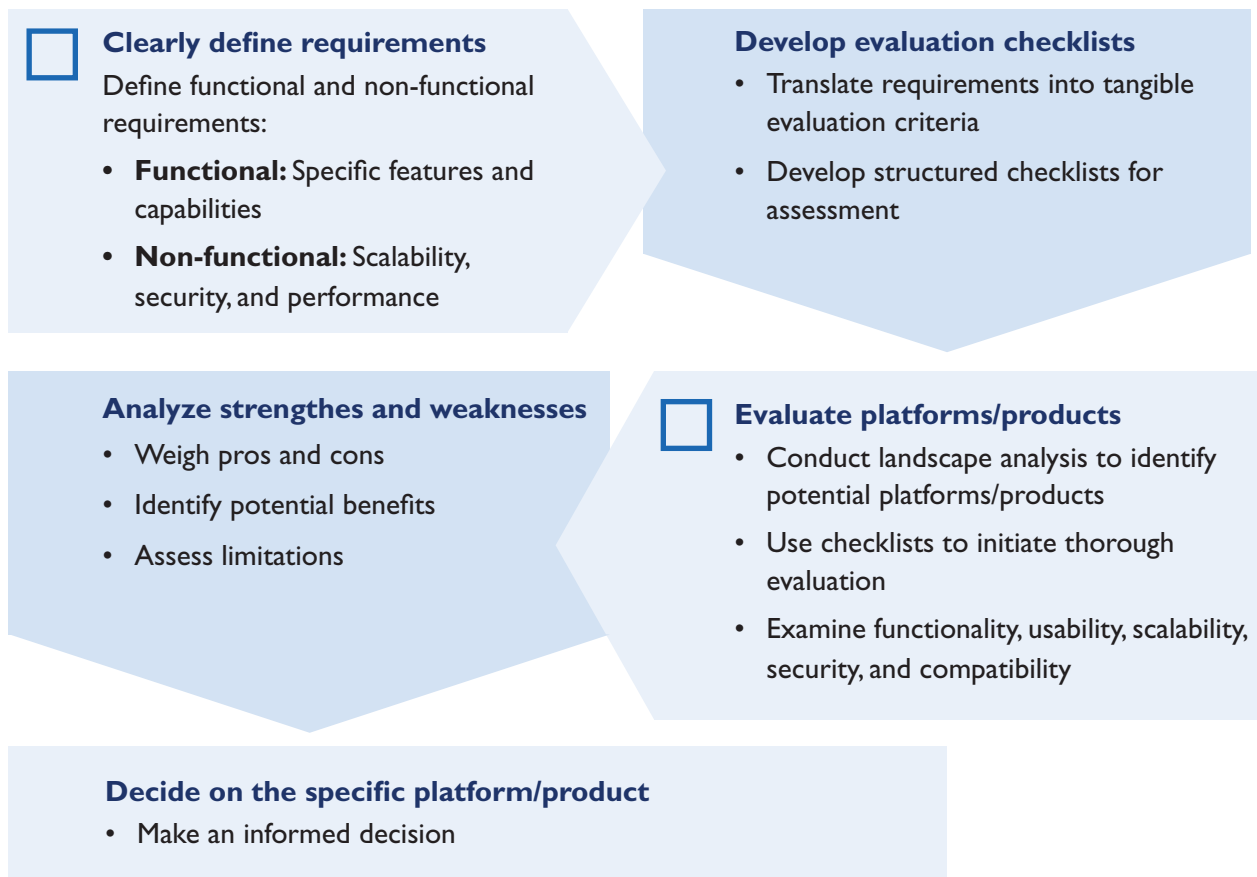
KEY CONCEPTS



Functional requirements outline the specific functionalities and features that a system must perform to meet the needs of its users. These requirements describe what the system should do and how it should behave in response to user interactions. Examples of functional requirements include user registration, patient record management, appointment scheduling, and communication features like messaging and notifications. Please note that the functionalities derived from the use cases under Phase-4 of Section 3 will constitute the majority of the system's functional requirements.

Non-functional requirements focus on attributes and constraints that govern how the system operates. These requirements address aspects such as performance, reliability, security, scalability, usability, and compliance with regulations or standards.

Figure II. Platform/product selection process

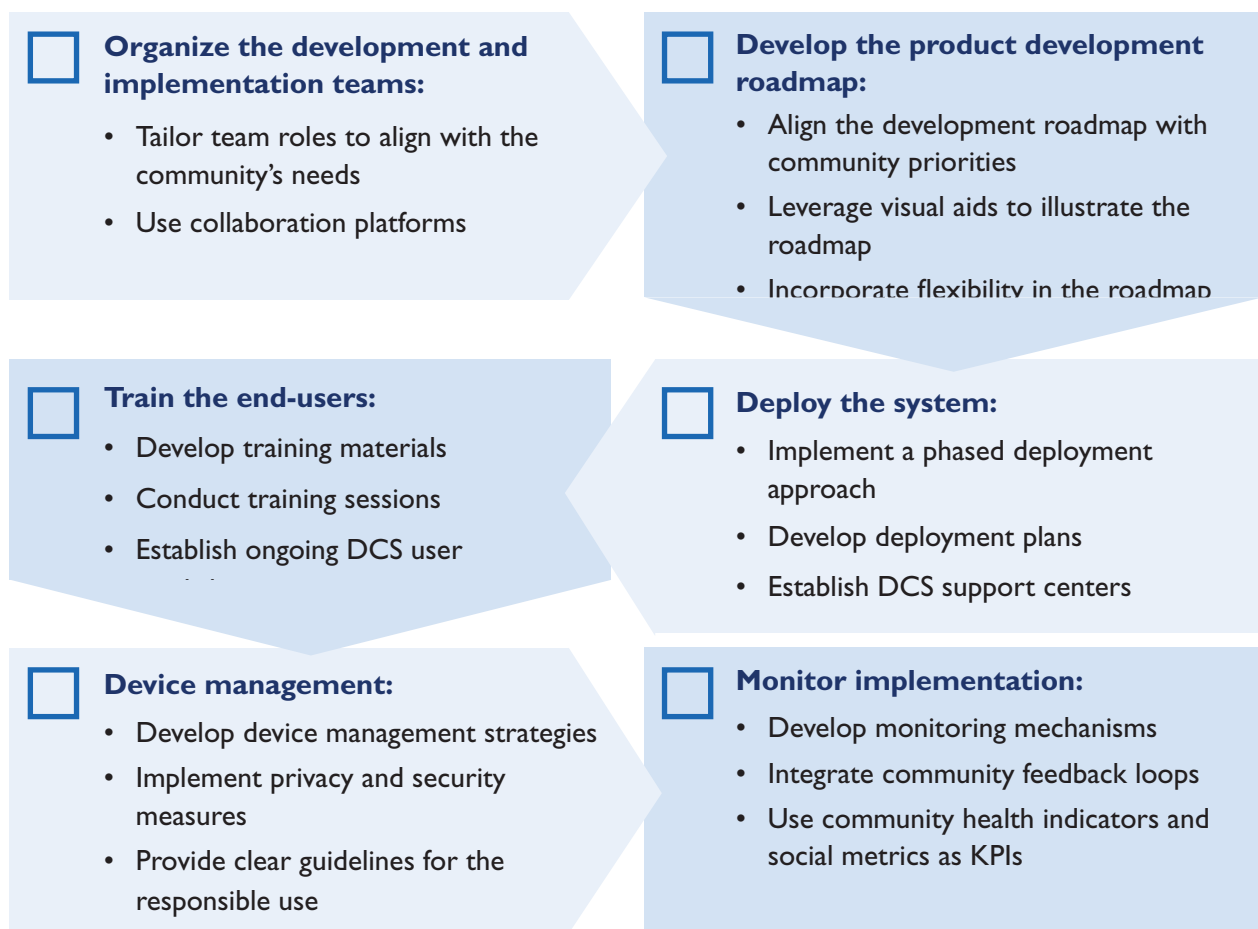


By adhering to these platform/product selection processes, countries can streamline their decision making, reduce the risk of mismatched investments, and ensure that the chosen digital solution not only meets the immediate requirements of the DCS but also supports the country's growth and evolution in the digital landscape. Developing clear requirements, conducting systematic software evaluation, and making informed software selection decisions are key to unlocking the full potential of digital investments.

Managing product development and implementation

Successfully navigating the complexities of DCS development and implementation is essential for building robust and impactful solutions. The following are some of the key steps that need to be properly managed to ensure a seamless and effective development and deployment process. It is important to note that the processes depicted in the graphics below are not an exhaustive list of important product development steps, and they may not unfold sequentially; instead, they often occur concurrently. For instance, training should begin alongside deployment to ensure user readiness, while training materials should align with system documentation efforts. Likewise, device management strategies are typically established before deployment, ensuring smooth operations. This highlights the need for comprehensive planning throughout the digital health implementation process to ensure sustained impact.

Figure 12. Managing product development and implementation processes



It is also important to make plans for maintenance and adaptation, following system implementation, to ensure the DCS continues to meet user needs.

Featured resources



[Deep Dive: Standards, SMART guidelines, and open source/open architecture systems and tools PowerPoint](#)



[Digital Square Global Goods Guidebook Version 4.0](#)



[Africa Centres for Disease Control and Prevention Health Information Exchange Guidelines and Standards](#)



[WHO SMART guidelines: optimizing country-level use of guideline recommendations in the digital age](#)



[Digital Implementation Investment Guide \(DIIG\): integrating digital interventions into health programs](#)



SECTION 5:

Bringing All the Pieces Together:

The Country Roadmap and Country/Group Presentation

Summary

This section introduces the components of a country DCS roadmap, which outlines the path a country plans to take to implement an integrated DCS. It also covers the final step in the workshop process, country presentations, which offer country teams the opportunity to synthesize and present their plans for peer feedback. By synthesizing critical elements—such as goal setting, stakeholder engagement, resource mobilization, alignment with broader health strategies, and managing risks—this section provides an outline and process for developing a roadmap to help countries chart the course towards DCS development and implementation.

Section objective

- Provide structured guidance to help countries develop DCS roadmap
- Ensure participants are equipped to develop country presentations.

Processes for developing a DCS roadmap

The DCS roadmap serves as a dynamic plan to guide the development, implementation, and M&E of the DCS. Because country teams tailor their roadmaps to the unique needs and contexts of their countries, the roadmap can guide stakeholders through a comprehensive journey—from outlining key activities to stakeholder collaboration, resource mobilization, risk mitigation, and performance evaluation. The roadmap's strategic alignment with national digital strategies ensures consistency and scalability. By creating and following the roadmap, countries embark on a transformative path, leveraging digital solutions to redefine the delivery of community services, foster community engagement, and ultimately, improve the well-being of all citizens in a sustainable manner. The following are key component of the DCS roadmap.

Outlining key activities

- **Define key activities:** This section is about identifying and defining the key activities needed to achieve the goals of the DCS roadmap. It is important to note that the activities introduced during the workshop are not expected to be completed within the workshop itself. The primary purpose of the workshop is to equip participants with the necessary skills and knowledge to carry out these activities. Therefore, the completion of these tasks will need to be factored into the overall roadmap. For example, country teams are unlikely to develop a full set of user personas and use cases during the workshop. Instead, they will learn how to perform these tasks and will need to complete them afterward. This should be reflected in the roadmap to ensure all activities are adequately planned and accounted for. Activities in the roadmap may include finalizing requirements, user persona and use case validation, customization of the DCS product; configuration and deployment; delivery of training programs for community workers; and other follow-up, coaching, and monitoring activities.
- **Key milestones and targets:** An example could be to complete the development and testing of the DCS platform within the first six months, train 500 community workers on digital community tools within the first year, and reach 80 percent of the target population with mobile health education campaigns within two years. In general, try to ensure that milestones and targets are specific, measurable, achievable, relevant, and time bound.
- **Timelines and responsible parties:** Set timelines and name responsible parties for each key activity, such as assigning start and end dates, identifying activity dependencies, assigning responsibility for each critical stakeholder in the development of the DCS platform, and partnering with organizations to implement training programs for community workers.

2

Aligning with relevant national policies and strategies:

Creating a DCS roadmap should align with strategies and policies related to digital transformation, health, social services, and community services. This alignment is crucial to leverage existing infrastructure, policies, and resources. It helps maximize synergies and minimize duplication of effort. Ensuring this alignment guarantees coherence, sustainability, and scalability of DCS interventions. Ultimately, it aids countries in achieving their national digital transformation goals.

3

Resourcing the country DCS roadmap:

Addressing the resource requirements to implement the DCS roadmap is crucial for its success. There are various strategies that countries are adopting to do this, including securing funding from government budgets; mobilizing donor resources, private investment, and others; mobilizing technical expertise from international and local technical assistance providers; and leveraging partnerships to support DCS initiatives effectively. It is important to emphasize working toward sustainable financing mechanisms, innovative funding models, and resource optimization strategies to ensure the long-term viability and scalability of DCS interventions. By aligning resource allocation with strategic priorities and performance metrics, countries can maximize the impact of their investments in DCS.

4

Risk management:

When implementing DCS, risk management focuses on identifying such challenges as data privacy and security, technical problems, regulatory barriers, coordination and governance challenges, and resistance to change from different stakeholders and users. Mitigation strategies include robust encryption, access controls, stakeholder training, contingency planning, and proactive steps to confront potential roadblocks. In addition, cultivating adaptability and resilience facilitates effective reactions to unanticipated conditions, minimizing the impact of risks on DCS implementation.

Country presentation

At the conclusion of the workshop, participating countries can showcase their progress throughout the week using the DCS Country Presentation template provided in the featured resources below. Their presentations should summarize the key components essential for their DCS initiatives. These components include the DCS vision statement; baseline and stocktaking analysis data in the form of major strengths and gaps; user personas and user journey maps; prioritized use cases and functionalities; leadership, governance, and coordination structures; assessments of the current and future enabling environment; proposed mechanisms for monitoring progress and fostering continuous learning; and a description of next steps in the implementation process. The country presentations inherently contribute to the digital community system's roadmap evolution and also serve as an advocacy tool to recruit stakeholders who may not have attended the workshop. As countries articulate their visions, priorities, and implementation plans, they provide invaluable inputs that inform the collective roadmap.

Featured resources



[Action Plan template](#)



[DCS Country Presentation template PowerPoint](#)



[Digital Community Systems Roadmap template](#)

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