

# DIGITAL SELF-CARE

A Framework for Design,  
Implementation & Evaluation

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In collaboration with the Self-Care Trailblazer Group



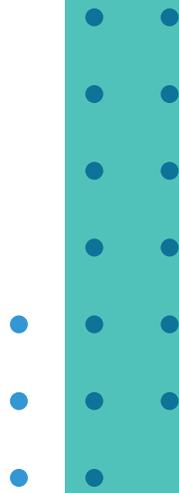


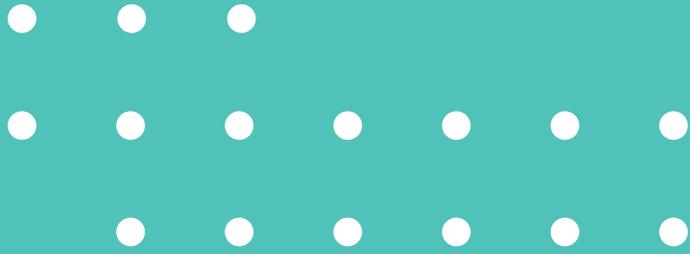
# ACKNOWLEDGEMENTS

Digital Self-Care: A Framework for Design, Implementation & Evaluation builds on the foundational work of the World Health Organization in self-care and digital health and draws heavily on the Principles for Digital Development. To the many institutions and individuals engaged in the development and refinement of the guidelines, tools, taxonomies, and principles we drew from for this resource, we are grateful.

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## BACKGROUND

Recent developments in health practices that were once in the full control of healthcare professionals and can now be safely self-administered have created a shift in thinking about how individuals engage in self-care. New commodities and drug regimens for **self-management** and **self-testing**, combined with promoting and encouraging **self-awareness** of one's own health has the potential to increase access to and reach of services and move health systems towards the goal of universal health care.

With the expansion of mobile phones, smart phone applications, internet access and artificial intelligence people are discovering new ways to engage in self-care. Digital platforms offer a means to facilitate and promote self-care that provide privacy for individuals who may otherwise be subjected to stigma and discrimination when seeking care and services in the formal health care system. **Digital tools can function both as the delivery mechanism and the self-care intervention itself.**

To support this evolution the **Self-Care Trailblazer Group** partnered with HealthEnabled to facilitate the development of a framework to **provide practical guidance for effectively designed, implemented and researched digital health in support of self-care.** The Digital Self-Care Framework maps the common touch-points of these two areas and highlights the considerations and research questions needed to inform policy and implementation in low- and middle-income countries. This Framework offers practical guidance for health program implementers, digital health developers and implementers, advocates and policymakers. It is based on findings from a desk review; key informant interviews and case studies of current evidence, experiences and best practices to accelerate, enhance

and measure the impact of digital self-care interventions. Using sexual and reproductive health and rights (SRHR) as a lens to provide case studies and examples of issues and opportunities for digital self-care throughout the document, the Framework can be applied across most health areas. It builds on relevant frameworks and resources from self-care, digital health and the emerging intersection of the two.

The development of this Framework has been concurrent with the Covid-19 pandemic, stimulating the movement for health to transition towards self-care, digital health and digital self-care.

The The World Health Organization (WHO) defines **self-care** as the ability of individuals, families and communities to promote health, prevent disease, maintain health and to cope with illness and disability with or without the support of a healthcare provider.

**Digital health** is the systematic application of information and communications technologies, computer science, and data to support informed decision-making by individuals, the health workforce, and health systems, to strengthen resilience to disease and improve health and wellness for all.<sup>1</sup>

<sup>1</sup> Consensus definition developed by Health Data Collaborative Digital Health and Interoperability Working Group.



# INTRODUCTION TO THE FRAMEWORK

The promotion and support of digital self-care behaviors can facilitate access to high-quality, accurate and appropriate information and services with flexibility to fit a user's lifestyle within a system of safeguards and support. The three domains of **self-awareness**, **self-testing** and **self-management** have been used to describe the range of interventions that are included under the broader term *self-care* and are useful to help understand the continuum of self-care. They are situated between an individual's daily life and the health system.

Digital self-care offers several unique benefits, including:

- Increased access to health information and services
- Safeguarded anonymity and increasing autonomy
- Linkages to the healthcare system for continuity of care
- Personalized services
- Continuous program monitoring for quality, safety and user satisfaction and impact

The Digital Self-Care Framework maps the steps to maximize the potential of digitally-enhanced self-care drawing from lessons learned and relevant frameworks and principles (see Annex A).

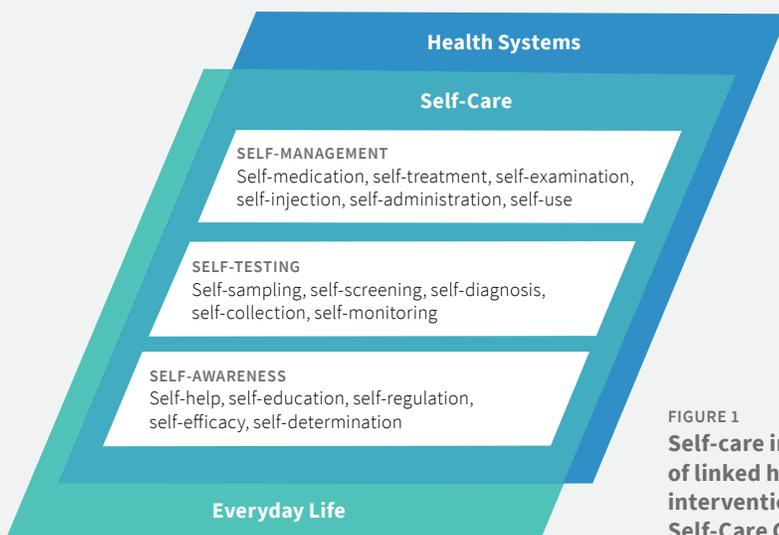


FIGURE 1  
**Self-care in the context of linked health system interventions from WHO's Self-Care Guidance, 2019**



CASE STUDY EXAMPLE

## VALUE ADDED

CyberRwanda is a comprehensive adolescent reproductive health platform designed and implemented by YLabs. This intervention demonstrates the value of well-designed quality digital self-care as it:

- **Increases access** for young people to safe, well-informed and age-appropriate information, services and commodities and makes use of online, offline, SMS, IVR, chat platforms and web-based interfaces
- Provides users with **independence and autonomy** to access information on their own time and in their own space
- Provides a supportive framework with **links to care, services and commodities through eCommerce**
- **Monitors quality and safety** through moderation of interactions and compliance with national and global guidelines and is supported by the MOH
- Builds in **research design** to measure priority outcomes and behaviors

For more information about CyberRwanda visit:

<https://www.ylabsglobal.org/work/all/cyberwanda>  
<https://cyberwanda.org/>



## DIGITAL SELF-CARE

A FRAMEWORK FOR DESIGN, IMPLEMENTATION & EVALUATION

### WHO SELF-CARE AND DIGITAL HEALTH

Three recent guidance documents from the WHO help provide a basis for identifying the common touch-points between self-care and digital technologies: the *WHO Consolidated Guideline on Self-Care Interventions for Health: Sexual and Reproductive Health and Rights*<sup>2</sup>; *WHO's Classification of Digital Health Interventions*<sup>3</sup> and *WHO's Digital Health Recommendations for Health Systems Strengthening*<sup>4</sup>. **Annex B** maps the common areas between digital interventions and WHO's Self-Care Conceptual Framework, which identifies digital technologies and platforms as a "place of access". It illustrates that most of the domains relevant to self-care have implications and applications for digitally-enhanced self-care interventions. The digital health interventions most relevant to self-care have been mapped out using the WHO classification highlighting the value that digital applications bring to self-care in **Annex C**. Digital applications enhance health behavioral support and self-care activities by increasing access, facilitating links to licensed trained professionals and providing users with privacy and anonymity.

### RANGE OF VARIABILITY IN SELF-CARE AND DIGITAL CONSIDERATIONS

The combination of two complex areas, self-care and digital health, creates a vast field with many challenges, barriers and opportunities. Both of these areas can be understood along three inter-related scales: user independence or self-efficacy, the user-provider relationship and digital complexity. These critical considerations inform the sorts of solutions that are most culturally appropriate and the resources that are needed to make people want to use them and for them to work well.

Self-care includes a range of activities that involve varying levels of **independence and self-efficacy**. The range of independence in self-care activities depends in part on the level of clinical risk involved and also on the comfort level of an individual user. Self-awareness activities such as accessing information related to disease prevention or learning about healthy sexual practices through a mobile chat have lower clinical risk.

2 WHO Consolidated Guideline on Self-Care Interventions for Health: Sexual and Reproductive Health and Rights [[link](#)]

3 WHO's Classification of Digital Health Interventions [[link](#)]

4 WHO's Digital Health Recommendations for Health Systems Strengthening [[link](#)]



ACCESS AND EQUITY

## MOVING BEYOND "HOW MANY PEOPLE HAVE A MOBILE PHONE?"

Gender inequities often play a role in digital technology access. In many instances women and adolescents negotiate access through shared devices. Digital behavior is also an important consideration that feeds into access: developers need to understand how the target audience uses their mobile phones, for example, not only if they have the device in their pocket. What applications do they regularly use and how much data is available for a new download? Do they have old models or new versions of phones and operating systems? How do they pay for their mobile connectivity? Do they use their phones to support any other health-related behaviors? These are just a few examples to illustrate the importance of researching user access with the ultimate goal of understanding how the intended digital self-care intervention would fit into their digital lifestyle and how to reach the portion of the population who are not able to participate through digital means.

The **user-provider relationship** plays an important role in supporting and encouraging self-care. An individual's journey in using self-care may rely heavily on provider support at specific moments in time and less at other times. A self-care behavior may be completely autonomous for some individuals, while others benefit from more feedback and support. This dynamic feature of self-care requires an agile health worker who has been trained not only in the clinical aspects of self-care but also the social, emotional and behavior change theories that encourage and promote self-efficacy.



## USER EXPERIENCES AND TRUST IN SELF-CARE

**Jojo is a WhatsApp-based contraceptive advice and product delivery service connecting young women in Nairobi, Kenya with experienced clinicians through live chat. A collaboration between Kenyan clinicians and SH:24, a UK-based online sexual and reproductive health service, Jojo is built through a process of human-centered design and funded by the Children's Investment Fund Foundation.**

Interviews with 20 young Jojo users showed how women were initially cautious about a WhatsApp-based service and gradually built trust by testing the service before revealing the issue that was really worrying them. The non-judgemental tone of voice used by the clinicians delivering the service, as well as their professionalism and technical knowledge, were perceived as indicators of a trustworthy service and resulted in increasing openness.

The case study below is an amalgamation of the stories of several users so they cannot be identified and confidentiality protected.

After hearing about Jojo, a 20 year-old woman takes the decision to message this new health advice line on WhatsApp.

She is skeptical, as she hasn't heard about a service like this before. None of her friends have ever mentioned it, and they are the people she talks to about sexual and reproductive health problems. She decides to message Jojo to see if it's a scam. She doesn't have a problem herself right now, so she decides to ask about a problem her friend shared with her recently. "Hi Jojo, I bleed too much, can you help?", she types. She gets a reply "Hi, thank you for messaging Jojo, before I help you, can you tell me your name, age, gender and location". Wary as to why they want this information, she gives her nickname and has a conversation with Jojo about heavy periods. She answers questions and receives advice. The person she is speaking to is friendly and seems knowledgeable. Satisfied with the advice, she sends her friend the Jojo number, and also saves it in her contact list for when she might need it next. The next time she needs emergency contraception she contacts Jojo again. This time she uses her full name, they ask her questions and she answers more confidently. She is still a little hesitant at the prospect of meeting a courier, but when he arrives with the contraception, he is also friendly and the package is discreet.

For more information about Jojo visit: [www.jojo.ke](http://www.jojo.ke)



## DIGITAL SELF-CARE A FRAMEWORK FOR DESIGN, IMPLEMENTATION & EVALUATION

From simple telephone hotlines, live chat message services, or SMS to more recent advances in artificial intelligence algorithms and chat bots, methods of digital engagement fall on a spectrum of **digital complexity**. Digital complexity influences access for users, as more advanced technology requires more modern smartphones, data usage and digital literacy. The selection of pre-existing digital platforms or services over the development of new applications will depend on the target audience's needs, access and available resources to find appropriate and sustainable digital entry points.

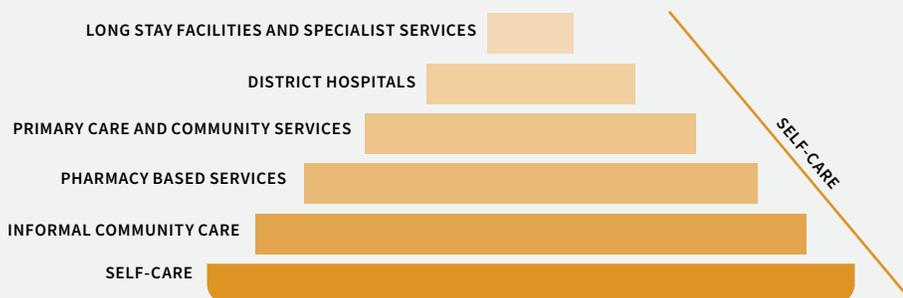
These aspects vary across a continuum and can change depending on the social context, available infrastructure and clinical risk of the self-care activity. Digital tools provide options and personalized support and messages that can fit into an individual's circumstances and independence comfort level.

### HEALTH SYSTEM CONTEXT

An understanding of digital self-care is built on the foundation of self-care within the context of the health system represented by the pyramid diagram (adapted from Remme et al., 2019). One face of this pyramid shows the position and importance of self-care as the foundation of both the formal and informal health systems. On the adjoining face of the pyramid, self-care plays a role in all levels of health interactions, through self-awareness, self-testing and self-management behaviors that are important in all aspects of health. It is critical to any discussion or understanding of digital self-care to recognize the cross-cutting role of self-care in all aspects of health care and health behaviors, not just in the base of the pyramid.



FIGURE 2  
**Pyramid diagram (adapted from Remme et al., 2019)**





CASE STUDY EXAMPLE

## ECOSYSTEM MAPPING

**Aidsfonds & Soa Aids Nederland are operationalizing their model to maximize cooperation between stakeholders in the implementation ecosystem of sexual and reproductive health self-care services with valuable lessons for fostering partnerships and providing quality self-care support.**

The Stepped Care Model for SRHR encourages all stakeholders in the field of sexual and reproductive health for young people to collaborate and coordinate their efforts with unified branding, messages and links between services. The results of this coordination guides individuals to a web-based platform, a delivery point with broad reach and low-cost, as an entry point to provide quality, age-appropriate and engaging SRHR sex-positive information. From this point, digitally-delivered personalized information guides the individual through self-assessment and self-awareness journeys and refers them to additional online and offline services according to their needs. As the individual moves through their care-seeking journey, they are referred to higher steps of the model that incorporate more human contact through chat services, hotlines and

eventually face-to-face services with healthcare and medical professionals as needed.

The Stepped Care Model promotes researchers, designers and implementers to understand and form meaningful partnerships within the existing implementation context to open opportunities for collaboration, compromise and to join forces rather than designing an independent app or SMS service. All stakeholders working together with the same messages and under the same branding can achieve higher levels of sustainability, increase reach of messages and services and ultimately lower the burden on the healthcare system.

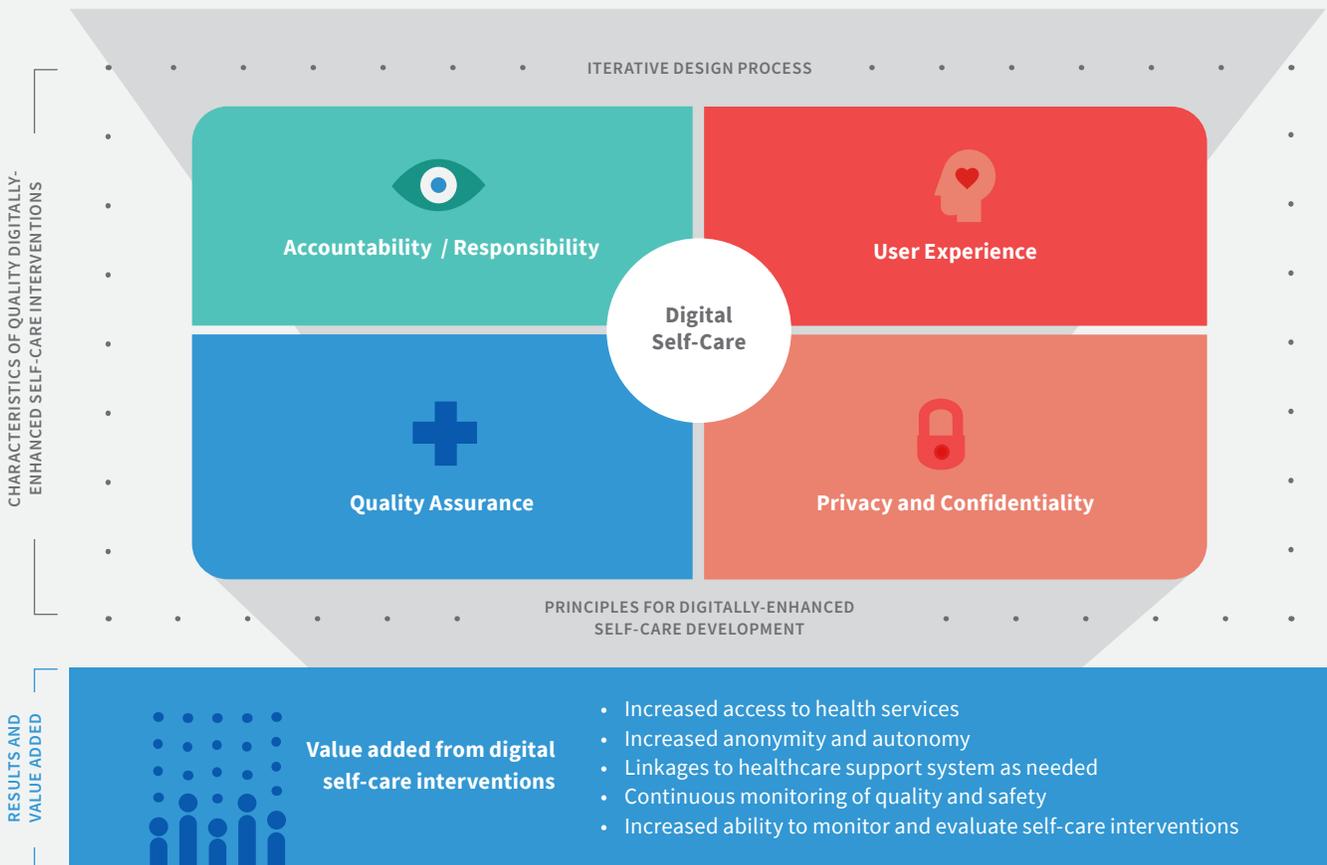
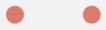
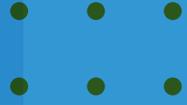
Aidsfonds & Soa Aids Nederland has built up the Stepped Care Model for SRHR in the Netherlands with youth brand SENSE and is currently contextualizing it in South-Africa with youth brand B-WISE and in Kenya with the youth brand One2One.

For more information visit: <https://aidsfonds.org/stepped-care-model-for-sexual-health>



# DIGITAL SELF-CARE FRAMEWORK

The Digital Self-Care Framework highlights four domains critical for digitally-enhanced self-care design and implementation, resulting in the unique value added that digital technology can bring to self-care.





The components of each of the four domains and supportive characteristics are detailed in the checklist below, which has been developed to inform design, implementation and evaluation with a targeted emphasis on informed planning.

## Digital self-care checklist of key characteristics

### User Experience

- ✓ Are users treated with respect and compassion?
- ✓ Are services accessible, inclusive and usable regardless of gender, race, sexual orientation, ethnicity or ability?
- ✓ Do providers, implementers and regulatory agencies demonstrate active and ongoing response to user and public perceptions, suggestions and concerns?

### Data Privacy and Confidentiality

- ✓ Are the user's identity and personal information protected?
- ✓ Is valid consent obtained from all users?
- ✓ Are confidentiality measures clearly communicated?

### Quality Assurance

- ✓ **Technical Competency:** Do users have the skills necessary to engage in digital self-care activities?
- ✓ **Technical Competency:** Do the relevant health care providers have the knowledge and skills necessary to support appropriate digital self-care behaviors?
- ✓ **Technical Competency:** Are the relevant health care providers licensed, registered and trained according to local regulations related to both self-care and digital health?
- ✓ **Client Safety:** Are the supported self-care activities and information safe, accessible, acceptable, and of good quality with built-in safeguards to manage and limit risks?
- ✓ **Client Safety:** Is the intervention based on evidence that it can improve intended outcomes for the user?
- ✓ **Client Safety:** Is the intervention developed and designed with participation from the target audience to meet user's needs?
- ✓ **Client Safety:** Are all information and services accurate and in compliance with national protocols, standards and global best practices?
- ✓ **Information Exchange:** Do the information and services provide a means to have back and forth exchange with health care providers as necessary?
- ✓ **Interpersonal Connection and Choice:** Do users receive care, information and support through the digital intervention and from relevant health care providers that is respectful, empathetic and free from judgement or stigma?
- ✓ **Interpersonal Connection and Choice:** Do users exercise choice, give consent without pressure or coercion to use the digital intervention?
- ✓ **Continuity of Care:** Does the digital system allow providers to make an adequate assessment of the client's health condition and/or provide appropriate referral to a licensed and trained health professional?
- ✓ **Continuity of Care:** Does the user have a reliable link to a health professional to ask questions, express concerns and receive care?

### Accountability / Responsibility

- ✓ Is the implementation and design in accordance with the legal and policy environment or global best practices with regards to quality and safety?
- ✓ Is there a process in place for continual review and improvement of services?
- ✓ Is there a system in place for redress and for reporting false information?



# CHARACTERISTICS OF QUALITY DIGITAL SELF-CARE INTERVENTIONS

The Framework highlights the four domains critical for digitally-enhanced self-care design and implementation, namely User Experience, Data Privacy and Confidentiality, Quality Assurance and Accountability/Responsibility supported through the Principles for Digital Self-Care Development and an ongoing iterative design process. The unification of these domains results in the unique value added that digital technology can bring to self-care. These key characteristics are adaptable to the range of variability in digital self-care and draw from the frameworks in **Annex A** in human rights, safety, quality, privacy, on-line service delivery and digital development to create a comprehensive set of criteria for digital self-care.



## **USER EXPERIENCE**

Person-centered self-care requires that the target audience's needs and experiences are the driving force behind the self-care intervention. The context- and audience-specific factors for a person-centered digital intervention should be part of the contextual analysis and formative research that feeds into the development and design process. The resulting digital tool should respond to the target user's needs, concerns and perceptions with respect and compassion and include regular review and feedback to make sure that the intervention is responsive to changes over time. This domain prioritizes the range of independence or self-efficacy, the user-provider relationship and digital complexity.



## **PRIVACY AND CONFIDENTIALITY**

Privacy and security of information, services and data is an important issue to address not only in the technical development of the digital self-care tool but also in the user's perceptions and comfort level for sharing, storing or receiving sensitive or private information on digital devices. Through

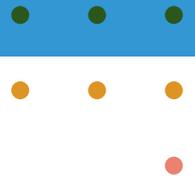


### CASE STUDY EXAMPLE

## DESIGNING WITH THE USER

The Design4Health team at Wits RHI in South Africa are involved in the development, intervention and research of a number of digital self-care applications. Their digital interventions are based on the experiences, advice and expertise of a trusted group of nationally representative young people, community youth leaders who provide feedback and ideas, conduct field testing and ensure that the voice, perspective and needs of the target audience are an integral part of the development, design and roll-out of the intervention. The research and design team stress the importance of deliberate and unhurried formative research and an iterative process to understand the environment, digital access and behaviors of their audience.

For more information on Wits RHI's work in South Africa visit: <http://www.wrhi.ac.za/>



the lens of SRHR, individuals may be reluctant to receive SMS about abortion, contraceptive or STI topics on their mobile devices for fear that others will intercept these messages. Messages received at night may be more acceptable than those received in the middle of the day. These fine details will only be uncovered through careful consultation and design with the user.

Interactions with any client-facing digital health application must obtain the user's informed consent and clearly state the privacy and protection measures that are in place. In some cases national regulations require identity verification with age limits or other restrictions on access to some services, commodities or participation in evaluation research which can hinder access for some groups. An assessment of the regulatory environment pertaining to the self-care service,



## DIGITAL SELF-CARE A FRAMEWORK FOR DESIGN, IMPLEMENTATION & EVALUATION

digital delivery method and data privacy regulations is critical. In the absence of clear data privacy regulations, global best practices should be followed to ensure that adequate protections are in place to safeguard the user's privacy.



### QUALITY ASSURANCE

Ensuring the quality and safety of digital tools for promoting self-care is directly tied to human rights and safety. The user's satisfaction, choice and perceptions of quality care must also be taken into consideration. The areas of Quality Assurance are directly linked to the Quality of Care Framework for Self-Care<sup>5</sup>, adapted here for special considerations of digital applications. The Quality of Care Framework is intended to help implementing partners integrate self-care interventions with strong links to the healthcare system that provide users with choices and maintain a high level of quality and safety. Maintaining a strong and reliable link to healthcare services with qualified and trained professionals is critical to ensuring the quality and safety of interventions.



### ACCOUNTABILITY / RESPONSIBILITY

An integral part of developing and implementing quality and safe digital self-care interventions is an understanding of the existing regulations, policies and legal provisions maintained and enforced by government agencies that impact access and use of self-care commodities, delivery channels and digital technology for health. Implementing agencies have a duty to understand and operate within the regulatory environment to ensure safety and quality.

### PRINCIPLES FOR DIGITAL SELF-CARE DEVELOPMENT

Although self-care presents some unique issues inherent to the shift of trust and agency to the individual, the recommendations for designing digital tools to help facilitate self-care are no different than those laid out in the Principles for Digital Development, nine guidelines to help integrate best practices into the use of technology for health and development across the globe. The advice and learning experiences on the digital development process for self-care described by key informants echo these nine principles that have been adapted here for specific application to digital self-care. The points laid out in these nine principles describe the

<sup>5</sup> A New Quality of Care Framework to Measure and Respond to People's Experience With Self-Care [[link](#)]



### CASE STUDY EXAMPLE

## TRAINING CLIENTS AND HEALTH WORKERS FOR QUALITY AND SAFETY

PATH developed an eLearning curriculum and video training tools as a way to ensure high quality and safe use of the self-injectable contraceptive DMPA-SC. The client self-training videos guide users on how to safely handle the injection device, when and how to perform the injection, common side effects and when to seek help from a health care worker. Clients in Senegal and Uganda learning to use the device for the first time preferred the video tutorial and demonstrated higher competency in self-injection than those using the traditional printed training materials.

Health care workers also receive training on how to support and guide new users of the self-injectable method through an eLearning course. The curriculum is currently rolling-out in Uganda and Senegal with an evaluation to understand the factors for success and barriers to achieving 80% proficiency in the learning modules. Providers can benefit from digitally-delivered training and supportive supervision as they engage in task-shifting and support users in safe and effective self-care practices.

For more information on PATH's digital training materials visit: <https://www.path.org/resources/dmpa-sc-elearning/>

design team's role in integrating the human rights, safety and quality considerations into the structure of client-facing digital technology. The principles and an iterative design process serve as guardrails for the characteristics of quality digital self-care interventions as on-going factors to be monitored throughout implementation.



<b>Principle</b>	<b>Recommended Application to Self-Care</b>
<b>Design with the User</b>	The first accountability is to the individual user. Services should be designed from the perspective of the user's needs, self-perception, digital technology access, digital usage preferences and desired level of interaction with the broader health system. Stigma, discrimination and protection of human rights need to be prioritized in the design process. Ethnographic field work with rapid prototyping and testing in prioritized populations should inform design to fail fast and get to success.
<b>Understand the Existing Ecosystem</b>	It is important to understand who the main stakeholders are that will be needed to support digital self-care (either with existing health and/or information services and applications that prioritized populations already use) and what governance bodies and/or regulations might support or impede design and implementation of digital self-care.
<b>Design for Scale</b>	A realistic assessment of the country situation in terms of the prioritized health issue and related services, infrastructure (hardware, software, internet access, etc.) and digital literacy should be conducted. A key question to answer is whether a sufficient enough proportion of the prioritized population will be able to access the services through the proposed digital service as well as what is the best pathway to coverage for this population?
<b>Build for Sustainability</b>	For digital self-care, it is important to design digital services to accommodate the volume of interactions/ transactions and assess the total cost of ownership for such services. Key questions to address include who pays, how much they will pay, and what the social and/or financial return on investment will be per capita and at full coverage/scale?
<b>Be Data Driven</b>	For many of the prioritized populations, the main benefit of digital self-care is anonymity. For many services it is necessary to forgo collecting and storing identifiable data in the name of providing access to services and information. However, it is possible to design backend systems that enable tracking of numbers and types of users to inform improvements to services, demand for services and advocacy efforts.
<b>Use Open Standards, Open Data, Open Source, and Open Innovation</b>	In general, in digital services, there is a movement towards open source and open standards and the development of global goods. In addition, to facilitate data sharing and aggregation across systems, the use of open APIs can also facilitate data sharing and interoperability for more effective linkages of individuals accessing self-care with the health system.
<b>Reuse and Improve</b>	In digital self-care, key areas for reuse and improve are in the development of standardized validated content that can be shared and used across platforms and adapted for use in multiple settings as well as delivery channels that individuals already use that can be repurposed.
<b>Address Privacy and Security</b>	Privacy and security of data and digital solutions are important to both the technical development of the digital service but also the prioritized population's comfort level for sharing, storing or receiving sensitive private information on mobile devices or websites. It will be important to align to the country and global best practices in relation to data ownership (like the General Data Protection Regulation in the European Union, which many countries are adopting/adapting), informed consent, data sharing and clear communication with users about what data is captured, how it is stored, how it is used and what their rights are related to access and control of their own data.
<b>Be Collaborative</b>	Digital self-care by nature requires a multitude of collaborations between digital service providers and self-care service providers as well as between the private sector where many of the services are emerging and the public sector for the development of supportive policies, strategies and regulations.



Best practices and implementation experiences combine in the Framework to create unique opportunities with value adds of access, autonomy, anonymity, continuity of care and monitoring of quality, safety, and impact.

CASE STUDY EXAMPLE

## DON'T MAKE ASSUMPTIONS

**PSI's implementation experiences offer examples of the importance of an iterative design process in every aspect of a digital self-care intervention that considers the user's lifestyle, behavior and needs front and center.**

In Myanmar, initial research indicated that smart phone ownership is almost ubiquitous, giving a presumptive green light to developers for the creation of a self-diagnostic mobile app for the general public. However, further research indicated that most people use their smart phones for basic calls and chats with very few apps. Making the leap to use smart phones for self-diagnosis and symptom checking was unrealistic. Designers updated the approach to develop a tool for use by community health workers as an intermediate step of getting these digital diagnostic tools to the community level.

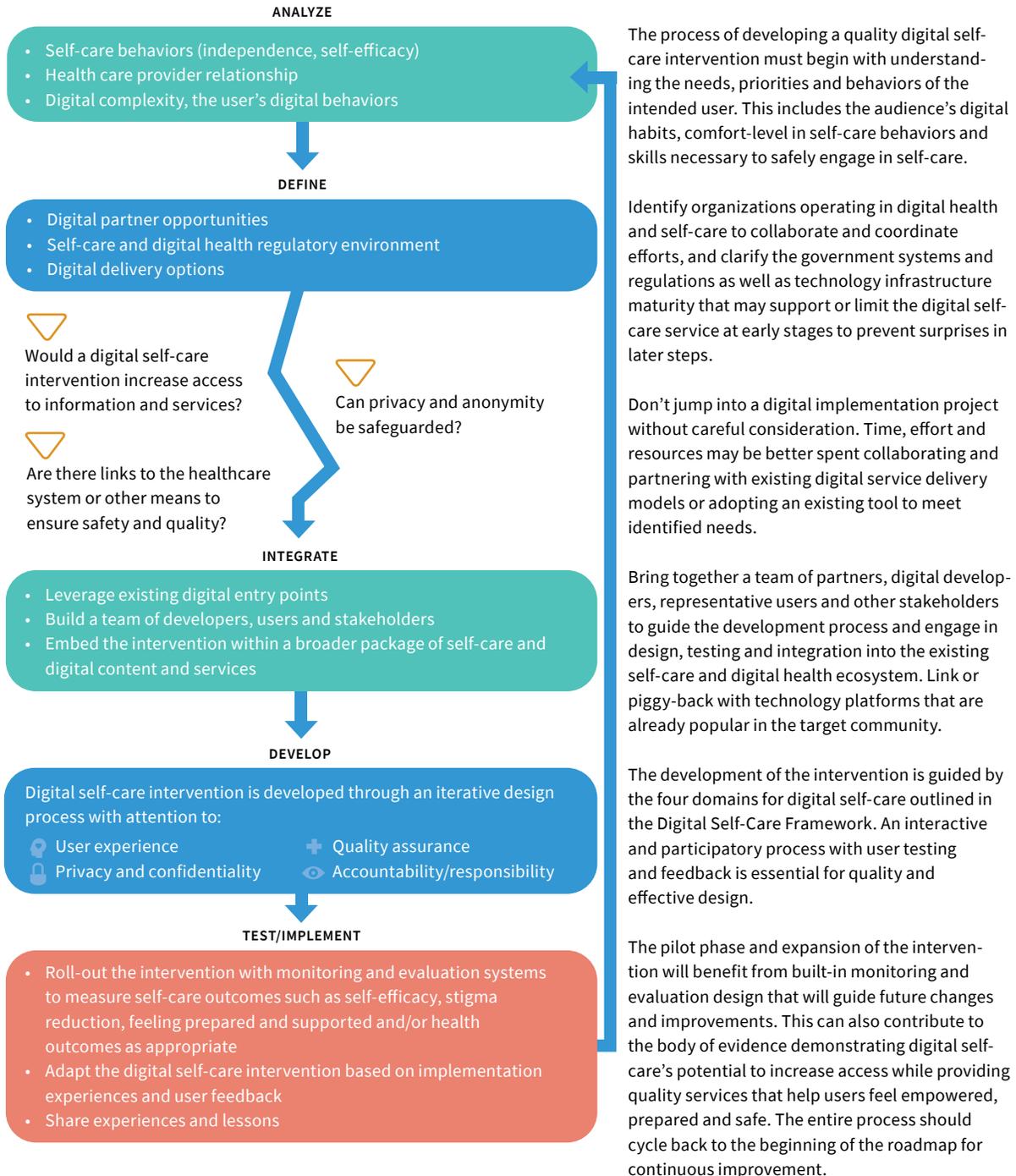
In Kenya, program developers created a web-based platform to encourage HIV self-testing, including referral to a local pharmacy to receive a subsidized self-testing kit. The assumption was that the cost of the kit was the factor limiting use of self-testing. Feedback showed that stigma and discrimination were much stronger deterrents to accessing HIV self-test kits and the requirement to go receive a test kit face-to-face was not addressing that pain point. Subsequent investment into eCommerce and smart vending machines attempt to address these barriers.

For more information on PSI's work in Digital Health visit: <https://www.psi.org/practice-area/digital-health/>



# DIGITAL SELF-CARE ROADMAP

The Roadmap illustrates the process of developing high quality digital self-care interventions, bringing together the important considerations and key characteristics outlined in the Framework.





## RESEARCH CONSIDERATIONS

The nature of self-care includes behaviors and activities that occur both within and apart from the formal healthcare system, making the measurement of changes in health outcomes challenging. Through a review of the literature and key informant interviews a few key areas for research have been prioritized: namely self-efficacy, empowerment and changes in the user's perceptions of quality of information and services and feeling supported. Social and emotional support is known to play an important role in many behavior change pathways and is by no means less important when the social connection is made through an app, a peer-support chat group or a website. Quality and safety of the intervention needs to be assessed alongside the ability of digital pathways to effectively support self-care. In this area, the value of self-reported emotions and feelings of support, preparedness, self-efficacy and empowerment are important outcomes that will make the approaches successful in the life of the individual.

Research is needed to address skepticism from government and policy-makers to demonstrate the impact of digital self-care information and services to reduce the burden on the healthcare system through cost-effective implementation and increased access. Health system managers require evidence on the ability of digital self-care to mirror the quality and safety of in-person interactions and to reduce costs. Creating effective clinical relationships through digital platforms is relatively new and under-evaluated and varies by context.

In light of these prioritized outcomes, there are few studies that examine the intersection between reproductive health self-care and digital health. A high level review of the literature reveals promising results for SMS, digital reminders and provider-initiated information to increase contraceptive use (Smith et al., 2017; Babalola et al., 2017a, 2017b) and to improve medication adherence for HIV ART (Ridgeway et al, 2018). Mobile messaging to promote reproductive health self-awareness can increase an individual's knowledge, attitudes and intention to use modern contraceptive methods, as well as promote feelings of preparedness and support around family planning (Ames et al., 2019; Johnson et al.,



### CASE STUDY EXAMPLE

## RESEARCH DESIGN FOCUSED ON SELF-REPORTING AND SELF-EFFICACY

Ibis Reproductive Health's partnership with the Samsara safe abortion hotline in Indonesia revealed the small organization was overwhelmed with calls addressing similar questions and repeat calls from the same individuals. After extensive formative research and field work to understand clients' digital behaviors, lifestyles and needs, the program developed a mobile app to address frequently asked questions as a supplement to the hotline's personalized counseling services. A randomized control trial evaluated the effect of the hotline's standard service with additional access to the app on client's feelings of preparedness and support while self-managing their medication abortion (Gerdtts et al, 2020).

The users with access to the app reported the same high-level of preparedness and support as those who received counseling through the hotline only. The research focusing on how person-centered care and feelings of preparedness contribute to the growing movement to place value and trust in the user's feelings and perceptions of quality as a valid way to assess and measure interventions supporting reproductive health self-care.

For more information on this study and Ibis Reproductive Health's partnership with Samsara in Indonesia visit:

<https://ibisreproductivehealth.org/publications/quality-care-safe-abortion-hotline-indonesia-beyond-harm-reduction>  
<https://samsara.or.id/>





## DIGITAL SELF-CARE

### A FRAMEWORK FOR DESIGN, IMPLEMENTATION & EVALUATION

2017; Feyisetan et al., 2015; McCarthy et al., 2019; Babalola et al., 2017a, 2017b). Individuals also report feeling prepared and supported when engaging with digitally-enhanced self-managed medication abortion and post-abortion care (Constant et al. 2014; deTolly and Constant, 2014; Gerdts et al., 2020).

Future studies ought to measure how quality clinical relationships are formed and maintained through digital platforms and can mirror or enhance face-to-face social and emotional support for individuals engaging in self-care for SRHR and other health areas. Well-designed digital self-care interventions should include embedded research design to contribute to this evidence base.

## CHALLENGES

The Framework and characteristics of digital self-care presented here reflect the ideal structure, system, foundation and implementation process for achieving the highest quality intervention. There is no doubt that in reality many of these factors will present challenges and barriers, especially in striking the correct balance in the aspects of variability in digital self-care. As the self-care and digital health communities gain more implementation experience and evidence, some of these barriers may resolve but new challenges will no doubt surface. Some of the challenges and barriers uncovered in discussions and review for this framework include:

- User-facing digital self-diagnosis tools that do not provide reliable links to quality support systems endanger safety and quality of care.
- A crowded field of multiple fragmented, overlapping digital interventions without a strategy for coordination dilutes the field and threatens the potential for achieving scale; government vision and structures for coordinating implementing partners is often lacking.
- Government policies and legislation related to self-care commodities and digital delivery mechanisms may be outdated, restrictive or create barriers to implementation (e.g. restrictions on telemedicine or self-testing commodities).
- The balance between verifying a user's identity and maintaining privacy can come into conflict and may depend on local regulations regarding age limits or consent requirements to access certain services or participate in



There is **no doubt** that challenges and barriers exist, especially in striking the correct balance in digital self-care variability.

research studies. Identity and verification have safety and quality implications for some services.

- Digital tools can increase access and equity, but all initiatives incorporating digital self-care must continue to strengthen and innovate offline service delivery to reach those who do not have digital access.



# CALL TO ACTION

In order for digital self-care to realize its potential and reach scale, well-designed, people-centered approaches that focus on the user's experience and self-efficacy outcomes can create high quality, supportive and responsive health services that accommodate and adjust to different stages of life, levels of independence, needs and concerns. However, a leap to use technological solutions for short-term projects without careful planning, design and incorporation of evidence and research limit the potential for digital solutions to make a measurable impact on an individual's health and wellbeing. This Framework and the background development process highlight key considerations and recommendations for various stakeholders on the path forward.

## **FOR DESIGNERS**

- Ensure the intervention addresses existing gaps and barriers to self-care for the target population
- Design with the user every step of the way: make no assumptions about your audience or the context
- Consider the range of variability in user independence and self-efficacy, user-provider relationships, and digital complexity
- Consider how the intervention can best be positioned to increase access to self-care and promote equity and choice

## **FOR IMPLEMENTERS**

- Digital self-care initiatives must be part of the wider digital ecosystem and guided by a robust strategy that integrates leadership, financial, organizational, human and technological resources
- Consider and plan for potential socio-cultural barriers and the regulatory environment for self-care and digital health
- Implement a strategy to ensure safety and quality through continual monitoring and response to feedback from users and stakeholders
- Ensure consistent links to the broader health system to support users, ensure quality and facilitate data collection
- Support linked healthcare professionals to receive the necessary training and support to encourage and assist individuals in self-care activities and maintain quality and safety

## **FOR RESEARCHERS**

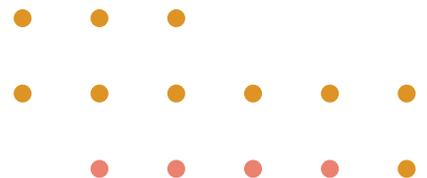
- Consider research questions that explore how the digital intervention mirrors or augments the social, emotional and professional support necessary to successfully engage in the self-care activity
- Listen to self-care users and trust their experiences to understand and prioritize important self-care outcomes in research design, including self-efficacy, choice, empowerment, preparedness, confidence, values and perceptions of quality and support

## **FOR POLICY-MAKERS**

- Include self-care in the national digital health strategy and support the digital ecosystem through a comprehensive approach that includes governance and leadership as well as financial, organizational, human and technological resources
- Understand the existing healthcare and regulatory system to address barriers and promote policies that will encourage and support digital self-care
- Establish quality and safety criteria and develop a validated list of digital resources that facilitate self-care
- Consider the existing foundation of health literacy and comprehensive health education in the population to create a supportive environment for individuals to engage in self-care through digital channels

## **FOR DONORS**

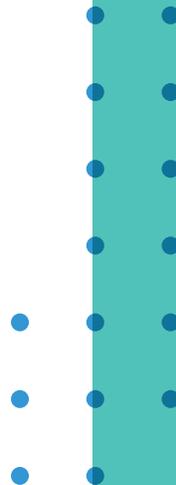
- Include self-care within a clear vision and strategy on digital health that goes beyond a single (health) issue focus
- Encourage collaboration and integration of digital health solutions among self-care grantees and beyond to reduce fragmentation
- Promote flexible and agile requirements for the development of digital self-care solutions
- Promote use of the principles for digital development to guide investments in digital self-care





## CONCLUSION

Digital self-care has great potential to fill existing gaps in access to health information and services, provide anonymity and autonomy, link individuals to health care providers and support the continuum of care, personalize health experiences, improve the ability to monitor and evaluate outcomes. WHO guidelines, classifications and frameworks provide the foundation for the Digital Self-Care Framework with special consideration given to digital technology, individual user independence and the dynamic nature of the user-provider relationship. The Framework along with the Checklist, Roadmap and Call to Action draws on country and program-specific resources, experiences and examples to serve as a living blueprint for designers, implementers, researchers, and policy makers as they embark on efforts to improve health and wellbeing for all through the digitization of self-care.





ANNEX A

# FRAMEWORK SOURCES

## Sources of Framework inputs and background

<b>WHO Consolidated Guideline on Self-Care Interventions for Health: Sexual and Reproductive Health and Rights</b>	Guidelines for creating evidence-based and people-centered self-care support for reproductive health. Includes considerations for new approaches and innovations in self-care.
<b>WHO's Classification of Digital Health Interventions</b>	A taxonomy of digital interventions to create a shared language for discussing and coordinating digital interventions for health.
<b>WHO's Digital Health Recommendations for Health Systems Strengthening</b>	An evaluation of digital technology innovations that can support health systems and help identify opportunities and limitations.
<b>Organisation for the Review of Care and Health Apps (ORCHA) Review Criteria<sup>7</sup></b>	UK-based organization to assess and rate health-related apps including assessment of quality and associated risk. Their framework for reviewing apps includes three domains: Data and Security, Clinical Assurance and User Experience.
<b>Standards for Online and Remote Providers of Sexual and Reproductive Health Services (UK)<sup>8</sup></b>	Clinical standards aimed specifically at service delivery outside of the traditional face-to-face model (online and other digital delivery). Safety, quality and responsibility are emphasized.
<b>Quality of Care Framework for Self-Care (PSI)</b>	A set of guidelines for ensuring a forthcoming set of guidelines for ensuring the highest possible quality standards for self-care, taking into consideration the individual, provider and regulatory role in quality assurance. Domains include Technical Competency, Client Safety, Information Exchange, Interpersonal Communication and Continuity of Care.
<b>Human rights framework for Self-Care<sup>9</sup></b>	A set of criteria for assessing the human rights implications of self-care interventions specifically focused on promoting and protecting sexual and reproductive health and rights.
<b>Criteria for assessing quality health-related apps in the UK<sup>10</sup></b>	The NHS's criteria for inclusion in their Apps Library of health-related digital tools. Includes quality, safety, regulation, user experience and data privacy.
<b>Principles for Digital Development<sup>11</sup></b>	A set of nine guidelines to help integrate best practices into the use of technology for health and development across the globe.
<b>A Vision for Going Online to Accelerate the Impact of HIV Programs<sup>12</sup></b>	A framework and guidelines for designing HIV-related interventions delivered through online platforms and social media including a checklist of key considerations.

<sup>7</sup> The ORCHA Review Process [[link](#)]

<sup>8</sup> Standards for Online and Remote Providers of Sexual and Reproductive Health Services: Joint BASHH/FSRH Standard. January 2020. [[link](#)]

<sup>9</sup> Ferguson, L., Fried, S., Matsaseng, T., Ravindran, S. and Gruskin, S., 2019. Human rights and legal dimensions of self-care interventions for sexual and reproductive health. *Bmj*. 365: l1941. [[link](#)]

<sup>10</sup> UK/NHS Criteria for Health App Assessment [[link](#)]

<sup>11</sup> Principles for Digital Development [[link](#)]

<sup>12</sup> FHI 360, LINKAGES Project. 2019. A Vision for Going Online to Accelerate the Impact of HIV Programs. Washington, D.C. [[link](#)]



ANNEX B

# WHO SELF-CARE FRAMEWORK DIGITAL INTERSECTIONS

## WHO's Self-Care Conceptual Framework and intersections with digital health

	Key areas of digital intersection
<b>Accountability</b>	All stakeholders involved in delivering, monitoring, implementing, regulating and promoting self-care have a responsibility to ensure that the same high level of <b>quality</b> and <b>safety, standards</b> and <b>human rights</b> are supported when that care is delivered or supported via digital technology.
<b>Enabling Environment</b>	The enabling environment for digital self-care are especially critical in the following areas: <ul style="list-style-type: none"><li>• A strong <b>health education</b> foundation that includes a comprehensive understanding of health to enable individuals to participate in meaningful self-care behaviors</li><li>• <b>Commodities, regulations, laws and policies</b> that support and monitor the safe delivery of self-care via digital technologies. This includes the necessary commodities to carry out self-care (self test kits or self-injectables, for example) and also the <b>digital health policies</b> that empower individuals to safely engage in self-care on personal</li></ul>
<b>Places of Access</b>	Aside from the “ <b>digital technologies and platforms</b> ” highlighted as a place of access, digital technologies increase the range of access points to include a mixture of <b>home, community, pharmacies, and health services</b> . Increasing access to self-care is one of the values added by employing digital tools and technologies.
<b>Key Principles</b>	All of the principles highlighted are equally essential and important to consider in the design and development of digital self-care interventions. <b>Gender equity</b> is of particular concern as access to digital technology and digital literacy differs in many countries by gender.



ANNEX C

# WHO SELF-CARE DOMAINS AND CLASSIFICATION FOR DIGITAL HEALTH INTERVENTIONS

## Intersection between self-care domains and digital health classifications

Self-care domains	Applicable WHO digital health classification	Examples of digital interventions through the lens of sexual and reproductive health self-care
<b>Self-awareness</b>  <b>Self-education</b> <b>Self-regulation</b> <b>Self-help</b>	<b>1.1</b> Targeted Client Communication <b>1.3</b> Client to client communication <b>1.4</b> Personal Health Tracking <b>1.6</b> On-demand information services to clients	<ul style="list-style-type: none"> <li>• Comprehensive sex education web/app platform for adolescents</li> <li>• Chat groups for peer-support for STI awareness in high-risk groups</li> <li>• SMS or IVR interactive menu via mobile phones for family planning information about available contraceptive methods</li> <li>• Mobile messaging services for pregnant women and families</li> </ul>
<b>Self-testing</b>  <b>Self-sampling</b> <b>Self-screening</b> <b>Self-diagnosis</b> <b>Self-collection</b> <b>Self-monitoring</b>	<b>1.1</b> Targeted Client Communication <b>1.3</b> Client to client communication <b>1.4</b> Personal Health Tracking <b>1.6</b> On-demand information services to clients <b>2.4</b> Telemedicine <b>2.3</b> Healthcare provider decision support <b>2.8</b> Healthcare provider training <b>4.1</b> Data collection, management and use	<ul style="list-style-type: none"> <li>• Website/app with self-guided information and decision-support tools with a voucher to receive a subsidized HIV self-testing kit at a nearby pharmacy</li> <li>• Smart vending machine for dispensing self-testing commodities free of stigma and discrimination</li> <li>• Self-diagnosis algorithm tools to support community health workers or directly to clients</li> <li>• Fertility tracking apps</li> </ul>
<b>Self-management</b>  <b>Self-medication</b> <b>Self-treatment</b> <b>Self-injection</b> <b>Self-administration</b>	<b>1.1</b> Targeted Client Communication <b>1.3</b> Client to client communication <b>1.4</b> Personal Health Tracking <b>1.6</b> On-demand information services to clients <b>2.4</b> Telemedicine <b>2.3</b> Healthcare provider decision support <b>2.8</b> Healthcare provider training <b>4.1</b> Data collection, management and use	<ul style="list-style-type: none"> <li>• Live chat with service provider to select, order and deliver family planning commodities with appropriate support</li> <li>• Medication reminders through mobile phone or stand-alone pill reminders for HIV ART adherence</li> <li>• App-based mobile phone platform with comprehensive support, pill reminders, motivation and education for PrEP users</li> <li>• eLearning platform to train healthcare providers in counseling and supporting self-injectable contraceptives</li> <li>• eCommerce platforms provide access to commodities that can be safely and effectively self-administered with link to support as needed</li> </ul>



# KEY INFORMANTS

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Erwin Fisser	Aidsfonds
Filippo Zimbile	STI AIDS Netherlands
Dr. Lisette Schutte	STI AIDS Netherlands
Suzanne Meijer	STI AIDS Netherlands
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Elmari Briedenhann	Wits RHI
Philip Rosenberg	Wits RHI
Nakita Sheobalak	Wits RHI
Letitia Greener	Wits RHI
Martin Dale	PSI
Megan Allen and Ally Salim	Inspired Ideas
Martha Brady	PATH
Ari Mostov	WellPlay
Alison Mckinley	International Planned Parenthood Federation



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