



Youth-centred digital health interventions

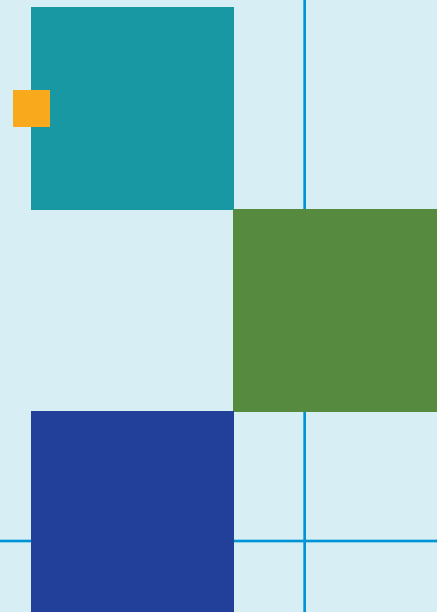
A framework for planning, developing and implementing solutions with and for young people





■ Youth-centred digital health interventions

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Youth-centred digital health interventions: a framework for planning, developing and implementing solutions with and for young people

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Preface	iv
Acknowledgements	vi
Abbreviations and acronyms	vii
Introduction	1
Chapter 1: Overview of the framework's three stages	5
Chapter 2: Fundamental principles	8
Chapter 3: Cross-cutting actions	10
Chapter 4: Planning the intervention	17
 Conduct a landscape analysis and a needs assessment	18
 Determine whether digital is optimal	24
 Develop a theory-driven approach	25
Chapter 5: Developing the intervention	29
 Develop a content and delivery strategy	30
 Create a series of prototypes	37
Chapter 6: Implementing the intervention	39
 Carry out a phased launch	40
 Create a promotion and marketing campaign	42
 Conduct monitoring and evaluation	46
Looking Ahead	52
Annex 1: Considerations for funders	53
Annex 2: Young people's perspectives on youth engagement	56
Annex 3: Content case study: ARMADILLO in Peru and Kenya	58
References	61



Looking to design digital health interventions for young people?

This document offers guidance on planning, developing and implementing digital interventions to promote better health among adolescents and youth. It includes the key steps in each stage and the unique aspects of designing such interventions with and for young people. It draws on the experience of many organizations and individuals working in the field—including young people themselves—and builds on existing knowledge and tools.

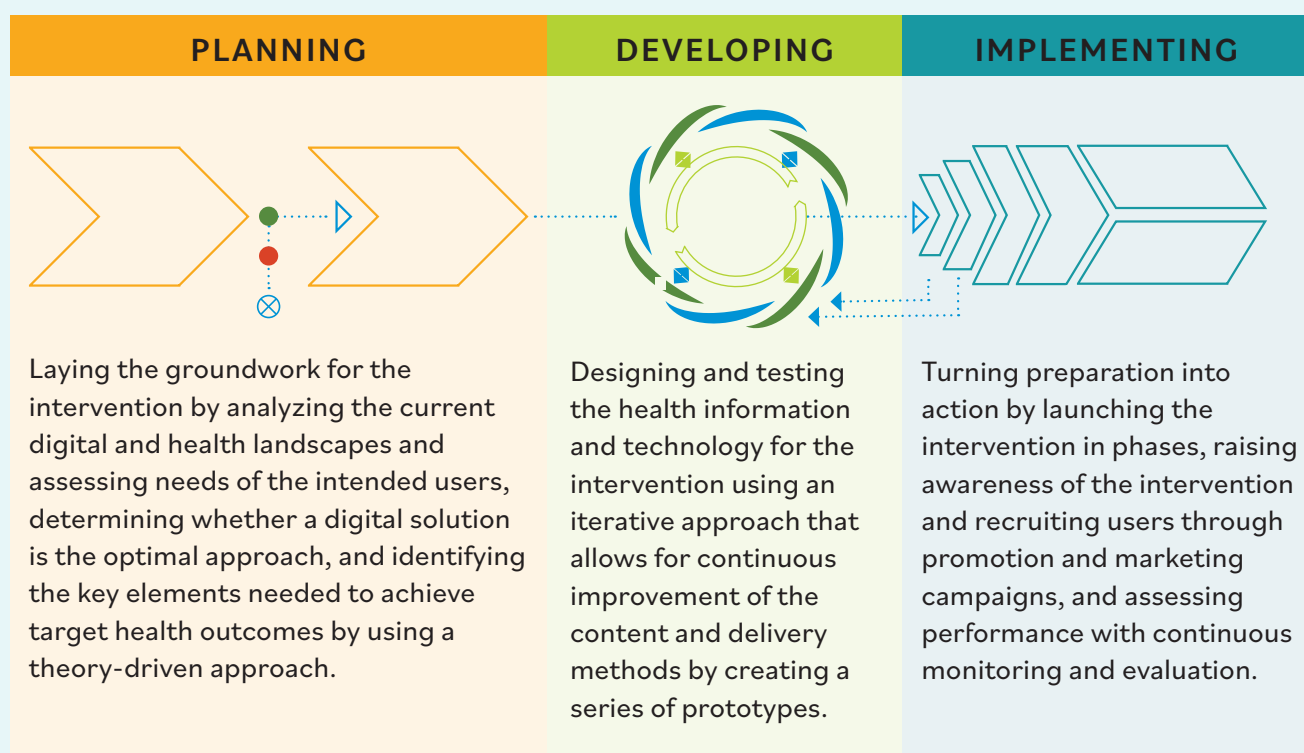
Who is this document for?

The guidance presented in this document is intended for digital health intervention designers, developers, implementers, researchers and funders. Newcomers to digital health can use it as a start-to-finish primer on how to collaboratively and responsibly develop youth-centred digital health interventions. Those already engaged in this work can jump directly to the chapters and sections with the ideas and resources they need. Funders will find helpful advice in Annex 1, which outlines special considerations for making smarter, more meaningful investments in digital health interventions for young people.

How is the document organized?

The Introduction briefly covers the history and landscape of digital health interventions for young people and how this document was developed. [Chapters 1 through 3](#) lay out an overarching framework, fundamental principles and cross-cutting actions for successful planning, development and implementation, respectively. [Chapters 4 through 6](#) each focus on one key stage in the process, including examples of current practices, tips and warnings, and case studies from leaders in the field. Importantly, each step within a chapter is accompanied by a list of additional resources.

The framework has three stages:



What are the key points?

Readers will come to understand these important insights:



Young people should be included at every stage of the process.

Their engagement should be sustained and meaningful. In addition to examples provided throughout the document, [Annex 2](#) covers the do's and don'ts of working with young people.

Digital is not always the best choice.

Make sure a digital solution fits with the intended health outcomes and is the right approach for the intended audience.



It is better to reuse than reinvent. Understand what is already available in terms of health content, technologies, delivery channels and development procedures. Reuse and build on them where possible rather than developing identical or bespoke versions from scratch.



Digital health is not a silver bullet.

Digital health and education interventions should complement and enhance existing health infrastructure and tools (both digital and nondigital) rather than function as standalone solutions.



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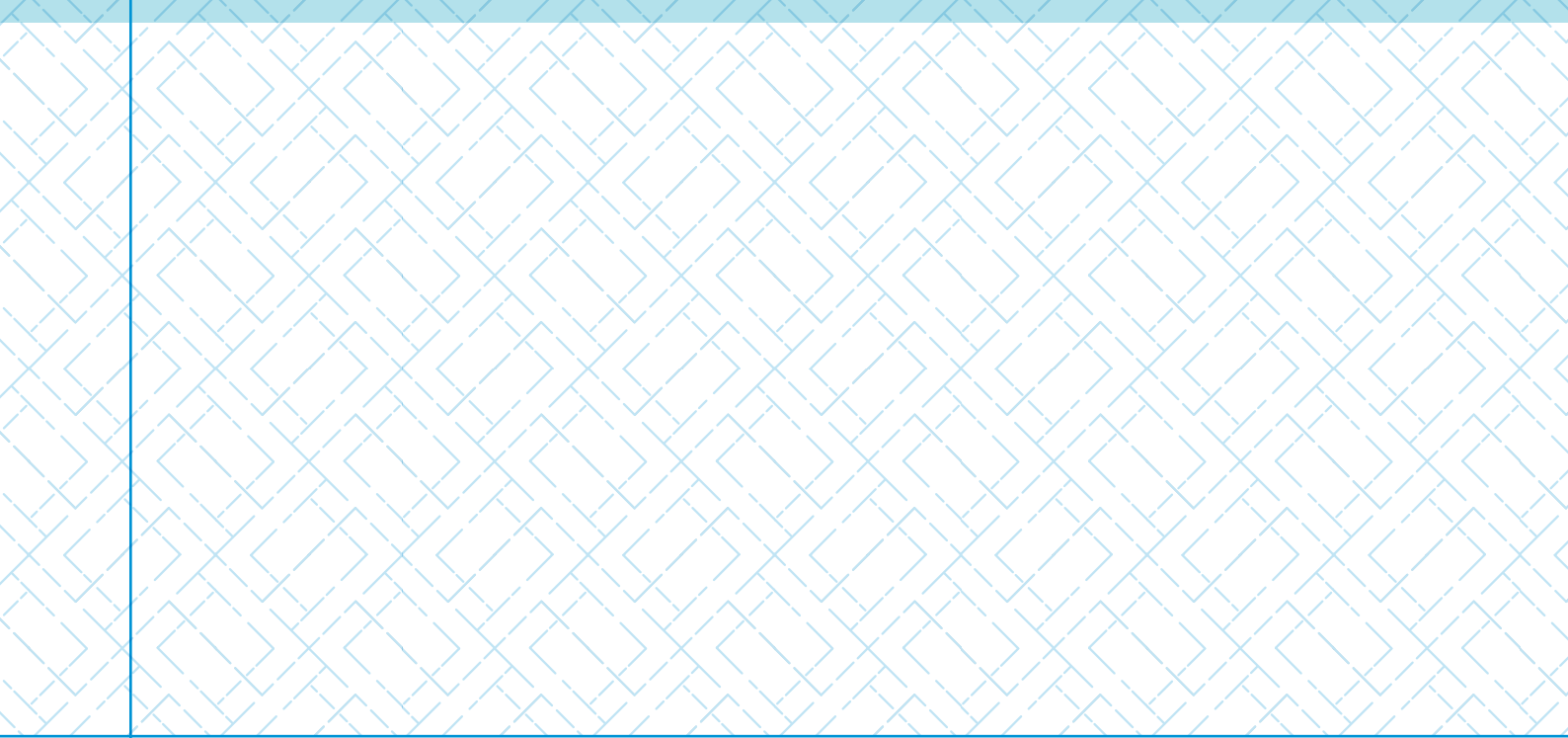
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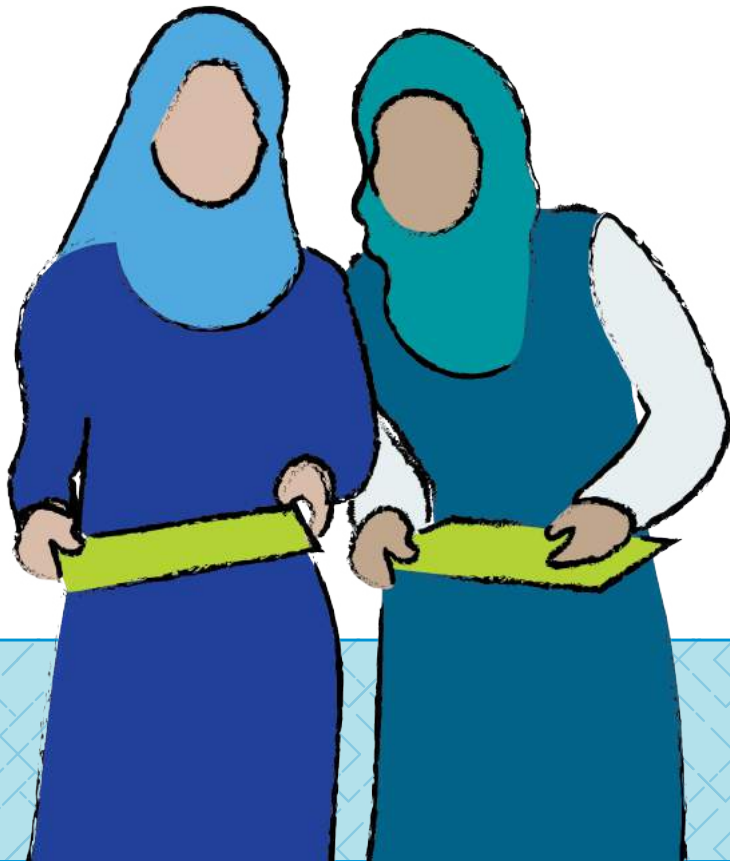


Abbreviations and acronyms

AI	artificial intelligence	TCC	targeted client communication
M&E	monitoring and evaluation	UNESCO	United Nations Educational, Scientific and Cultural Organization
mHealth	mobile health	UNFPA	United Nations Population Fund
NGO	nongovernmental organization	UNICEF	United Nations Children’s Fund
SMS	short message service	WHO	World Health Organization
SRH	sexual and reproductive health		
SRHR	sexual and reproductive health and rights		







Introduction

The world currently has more than 1.8 billion young people—a group encompassing adolescents (ages 10–19) and youth (ages 15–24) (1). Adolescents and youth transition through significant physical, psychosocial and emotional changes as they grow into adulthood, and their social roles evolve substantially in the eyes of their community and their culture (2). This is also a critical period during which they can establish health-promoting behaviours that will contribute to their present and future well-being (2).

A variety of health challenges may also emerge during this period related to mental health, sexual and reproductive health (SRH), substance use, and diet and physical activity, to name a few. All of this is influenced by environmental, social and economic factors, including family and cultural dynamics, access to health services, exposure to violence (including gender-based violence) and migration.

In recent years, the health of adolescents and youth has substantially improved and gained greater attention. Significant challenges remain, however. For example:

- Better access to contraceptive information and services can reduce the rate of pregnancy and childbirth among adolescent girls (3). But every year, about 12 million girls aged 15–19 give birth in developing regions, and complications due to pregnancy and childbirth remain the leading cause of death among girls in that age group globally (4–6).
- Knowing how to protect against HIV infection and having the means to do so can prevent the spread of HIV (3, 7, 8). But an estimated 1.7 million adolescents worldwide are living with HIV, and 510,000 young people aged 10–24 were estimated to be newly infected with HIV in 2018 alone (7, 8).



- Promoting nurturing relationships between parents and children early in life, providing training in life skills and reducing access to alcohol and firearms can help prevent injuries and deaths due to violence (3). But as many as 1 billion children aged 2–17 worldwide are estimated to have experienced physical, sexual, or emotional violence or neglect (9, 10).
- Building life skills in children and adolescents and providing them with psychosocial support in schools and other community settings can help promote good mental health (3). But mental health conditions such as depression and anxiety account for 16% of the global burden of disease and injury among those aged 10–19 (11, 12).
- Healthy eating habits in adolescence are the foundation for good health in adulthood. But in 2016, iron deficiency anaemia was the second leading cause of years lost by adolescents to death and disability, and more than 340 million children and adolescents aged 5–19 were overweight or obese (3, 13).

An investment in the health and well-being of adolescents and youth is an investment in their social and economic development and that of their communities. Many sectors of society benefit from a healthy young population, and many of those sectors play an important role in protecting and promoting the health of young people (2). Education, for example, is strongly linked to health outcomes and to determinants of health such as the use of preventive services (14, 15).

Health interventions and digital technologies

The use of digital platforms is an increasingly popular approach for achieving health objectives, particularly among adolescents and young people and particularly to address health system shortcomings such as lack of access (16). In 2019, the World Health Organization (WHO) issued a WHO Guideline titled *Recommendations on digital health interventions for health system strengthening*. It included recommendations on using targeted client communication (TCC) to transmit health information, including health education, to specific audiences based on health status or demographic profile (16). Such information might be for health promotion, spreading awareness of services and behaviours, reminding people about services or adherence to treatments, or notifying people about diagnostic results. Information might be transmitted via text message, voice, interactive voice response, apps or social media (16). The WHO Guideline recommends using this approach “under the condition that potential concerns about sensitive content and data privacy can be addressed” (16).

The use of digital technologies to promote better health is commonly known as *digital health* and includes *mHealth*, which refers to the use of mobile wireless technologies for health (16). Digital health is particularly promising in low- and middle-income countries, where mobile phones are the primary way to access the internet (17). Mobile broadband coverage is also increasing, with about 97% of the world’s population living within reach of a mobile cellular signal (17, 18). People under the age of 35 are more likely to have a smartphone than those in older age groups, and the rate of adoption among young people is much higher (19). Children and adolescents under age 18 account for an estimated one in three internet users worldwide, and a growing body of evidence shows that young people are accessing the internet at increasingly younger ages (20).

Digital divides exist, however, and they mirror broader socioeconomic divides—between rich and poor, men and women (20–22), cities and rural areas, and those with education and those without (20, 23). For example, 81% of people in developed countries use the internet, compared with 40% in developing countries and 15% in the least developed countries (20, 21). Digital divides do not merely separate the connected and the unconnected. They go deeper, reflecting how people use information and communications technology, the quality of their online experience, the digital devices they have access to and the availability of content in their own language, among other factors (20).



Improving equity of access to digital technologies can help transform health and education for young people by delivering information to them that was not available to previous generations in their communities.

The first generation of digital health interventions for young people

The first generation of youth-centred TCC interventions, initiated in the early 2000s, focused largely on sexual and reproductive health and rights (SRHR). Emerging digital technologies offered pioneers in the field the ability to discreetly deliver private, even tailored, health content over a variety of digital channels, starting with websites, short message service (SMS) text messages and voice messages. This era was dominated by standalone youth-centred website- and SMS-based interventions and a wealth of “pilots” (24). Among the lessons the implementers learned was that digital health interventions were not a silver bullet—they could complement or enhance existing health services and expand coverage but not replace them or change health outcomes on their own (16).

This document draws on the lessons learned in the first generation of youth-centred digital health interventions, as well as insights from research and from the field, to help health intervention designers, developers, implementers, researchers and funders thoughtfully plan, develop and implement effective youth-centred digital health interventions for the current era. It builds on existing literature and is meant to be used alongside the other sources mentioned in this document.

Creating the framework and this document

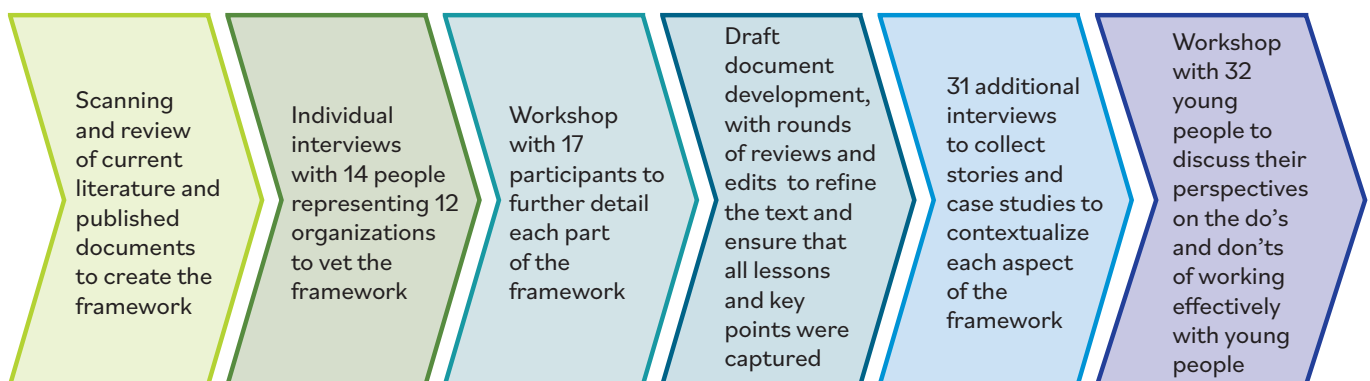
The framework presented in this document grew out of a multi-step process (Fig. 1) that included a targeted literature review, consultations, interviews, a workshop and additional input from experts and young people.

The targeted literature review included a broad array of documents, including these from United Nations (UN) agencies and nongovernmental partners:

- [*Digital implementation investment guide \(DIIG\): integrating digital interventions into health programmes*](#)
- [*The MAPS toolkit: mHealth assessment and planning for scale*](#)
- [*Planning an information systems project: a toolkit for public health managers*](#)
- [*Designing digital interventions for lasting impact: a human-centred guide to digital health deployments*](#)

Fig. 1.

The process of creating the framework and this document



The next step was to interview global experts from academia, nongovernmental organizations (NGOs), research institutes, social enterprises and UN agencies about designing digital health interventions for young people. At a subsequent three-day workshop co-hosted by WHO and UNICEF, these and other experts reviewed, vetted and discussed each area of the evolving framework and shared key lessons from their experiences in the field. The experts subsequently provided additional input to help refine the framework and this document.

The experts also identified other organizations involved in youth-centred digital health initiatives. Some of these initiatives are described in this document as illustrative case studies, drawing on published and unpublished program reports, evaluations and interviews with individuals from those organizations. Donor representatives shared their experiences with funding youth-centred digital health interventions; these are summarized in Annex 1. Annex 2 provides some perspective from young people who worked with intervention developers and helped design interventions.

Chapter 1 provides an overview of the framework's three stages. Chapters 2 and 3 explain the three fundamental principles and four cross-cutting actions that apply to all three stages. Chapters 4, 5 and 6 go into greater detail on the three stages and include tips and lists of additional resources, along with the case studies showing how key ideas have been put into practice.





Chapter 1

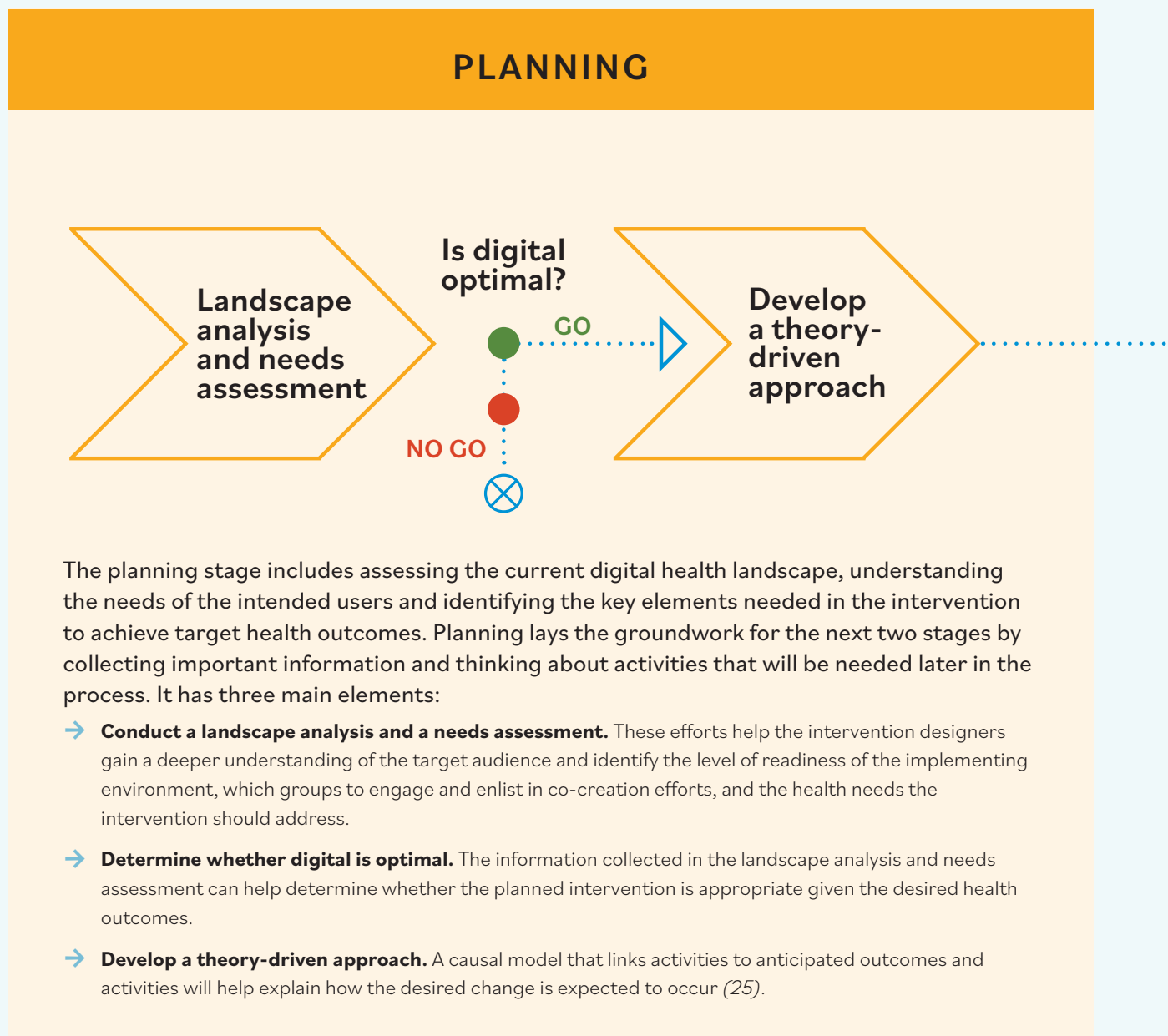
Overview of the framework's three stages

The framework for youth-centred digital interventions, depicted in Fig. 2, has three stages: planning, developing and implementing. It also includes three fundamental principles and four cross-cutting actions that apply to all of the stages, as described in the next two chapters. These ideas are drawn from the experiences of experts in the field—successes as well as missteps that required course corrections.



Fig. 2.

Framework for youth-centred digital health interventions



CROSS-CUTTING ACTIONS



Engage young people



Involve the right people at the right time

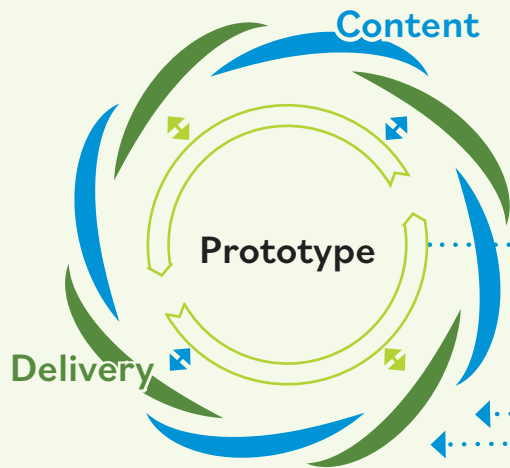


Make decisions based on data and evidence



Promote safety, privacy and ethical standards

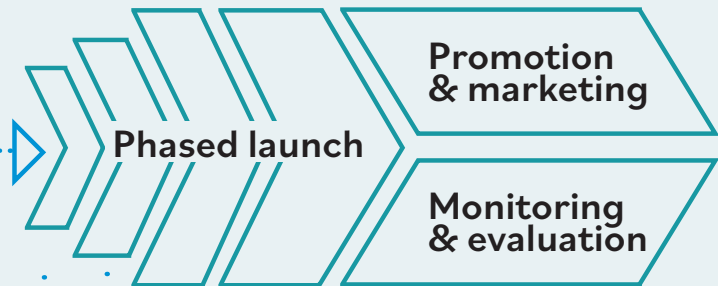
DEVELOPING



The health information being delivered and the technology used to deliver it are at the core of the intervention. They should both be developed using iterative cycles to continually improve on the content and the delivery methods. The development stage has two main elements:

- **Develop a content and delivery channel strategy.** This includes the approaches for co-designing the information to be included in the intervention and how it will be delivered to users.
- **Create a series of prototypes.** Early models of the intervention are crucial for testing concepts, measuring and evaluating intervention designs, understanding user preferences and moving from theoretical plans to a phased launch.

IMPLEMENTING



The implementation stage is where preparation turns into action. It includes these main elements:

- **Carry out a phased launch.** The launch happens in increments, with assessment and user testing at each phase to improve subsequent versions.
- **Create a promotion and marketing campaign.** These activities raise awareness about the intervention, generate interest and recruit users through various communications strategies.
- **Conduct monitoring and evaluation.** Assessments of the intervention's performance can identify progress and opportunities for improvement.

FUNDAMENTAL PRINCIPLES



Iteration



Equity



Sustainability



Chapter 2

Fundamental principles

Three principles—iteration, equity and sustainability—underlie best practices for planning, developing and implementing digital health interventions for young people. They are crucial to success at each stage.



Iteration

Having an iterative process means being open to change and factoring in time to modify and adapt the intervention. At the start of the process, it is easy to have a preconceived idea of what the intervention will look like. But current practices and field experiences indicate the need to include many points throughout the development and implementation process for collecting data and feedback, prototyping, testing, learning and updating the intervention to incrementally and progressively improve each “draft version.” This iterative process may ultimately lead to pivoting away from the original notions.

For a valuable resource on designing digital health interventions, see the [Principles for Digital Development](https://digitalprinciples.org/principles/) website at <https://digitalprinciples.org/principles/> (26).





Equity

Equity means ensuring fair and impartial access to the digital health intervention. This has proven to be a challenge on both the local and global levels because access to mobile phones can vary between groups. For example, women in low- and middle-income countries are 10% less likely to own a mobile phone and 26% less likely to use mobile internet than men (27, 28). Rural populations in those countries are 40% less likely to use mobile internet than urban populations (17). The digital divide also mirrors prevailing economic gaps, amplifying the advantages of wealthier people and failing to deliver opportunities to the poorest and most disadvantaged (20). Nearly 90% of young people who are not using the internet live in Africa or in the Asia-Pacific region. In 2017, Africa had the highest proportion of nonusers aged 15 to 24.



Sustainability

Sustainability can mean different things at each stage, but in general it calls for thinking through how the intervention will be able to stand on its own, beyond the initial development and implementation and beyond initial funding. Sustainability may also involve operating at a larger scale (with more users, more functionality and/or more features) in the long term. Building a sustainable intervention involves “beginning with the end in mind” and paying attention at the earliest stages to developing a financial model and enlisting supportive partners (29).

Transitioning program ownership to Zambia’s national government

The United Nations Population Fund (UNFPA) East and Southern Africa Region worked with several partners—the Ford Foundation, Praekelt Foundation, the Swiss Agency for Cooperation and Development and the UK Department for International Development—to develop [Tune Me](#), a mobile site that provides SRHR information and services to young people in seven countries in the region. In Zambia, to ensure long-term success, a sustainability strategy was incorporated during the early phases of development, with the ultimate goal of transferring ownership of the program to Zambia’s national government. UNFPA had an existing relationship with Zambia’s national government from UNFPA’s flagship SRHR program, Safeguard Young People. The government saw the benefit of adopting Tune Me to reach as many young people as possible with accurate and age-appropriate SRHR information and thereby reduce teenage pregnancies and HIV incidence, promote safer behaviours and equip young people with skills to make more informed decisions about their health.

The platform is jointly owned by Zambia’s Ministry of Youth Sport and Child Development and the Ministry of Health. In 2018, the technical and financial responsibilities for Tune Me began to transition from UNFPA and its partners to these two ministries. Guided by the Zambia Information and Communications Technology Authority to ensure privacy of personal information, the two ministries led the migration of the platform from the developer’s server to the National Data Centre, which is part of the Ministry of Health infrastructure. The two ministries share responsibility for Tune Me’s information technology maintenance and program management, for which they have dedicated staff. They also share responsibility for marketing activities, which make use of the ministries’ preexisting community-based interventions. The Ministry of Health leads the program’s content review and validation to ensure alignment with national strategies and guidelines.



Case study





Chapter 3

Cross-cutting actions

The following actions should be carried out in a thoughtful, responsible and meaningful way at every stage of the framework.



Engage young people



Involve the right people at the right time



Make decisions based on data and evidence



Promote safety, privacy and ethical standards

The specific approaches to each action, described in this chapter, have been tested and learned from research and from the field.



Blue arrows throughout this document highlight places where a cross-cutting action applies.



Engage young people

Engaging adolescents and youth means actively and intentionally involving them as co-creators, collaborators, problem solvers, champions and change agents (30, 31).

Meaningful engagement requires an inclusive and mutually respectful partnership between young people and adults in which power is shared, respective contributions are valued and acknowledged, and young people's ideas, perspectives, skills and strengths are integrated into the design and delivery of intervention (32).

As a result, young people are not just the beneficiaries of the intervention but also drivers of change, especially when it comes to their own health (33). They are the experts on what health information young people need and what technology young people are using. Engaging them meaningfully, as part of the project team, requires careful planning as well as monitoring and evaluation (M&E) throughout the planning, development and implementation stages of the digital health intervention. This is mutually beneficial for them and for the developers of the intervention: the young people have an opportunity to contribute their ideas and experiences to the development of an intervention they can use, and the developers gain a better understanding of the population they are trying to reach and can create a better product that is more likely to succeed.

For many organizations, engaging young people in this way can be challenging, so they vary in how much they involve young people in the process. It can range from having several young people engaged in every aspect of planning, development and implementation to having a youth advisory board to consult throughout the process. Annex 2 offers some do's and don'ts for engaging young people.

Half-hearted efforts should be avoided at all costs, such as those in which young people are seemingly given a voice but in fact have little or no say in the content or the style of communicating it and little or no decision-making authority (34). Tokenism should also be avoided, such as inviting one young person to a meeting to represent "the voices of young people" or having young people participate in consultations but not following up with them. Approaching youth engagement in these half-hearted ways is generally unsuccessful and can be harmful to the young people involved, including making them feel disrespected and used (31).





Ensuring a youth-driven process

Involving young people at every phase of the development process helps ensure that the intervention will be valued and sustainable. To ensure authentic engagement and create a safe space for young people, [Youth Development Labs](#) (YLabs) recommends emphasizing two areas: safety and fun.

Safety. Creating an environment that is safe and feels safe is critical. YLabs works to ensure this by developing, practicing and implementing “safeguarding protocols.” For example, one safeguarding protocol is beginning each session by explaining that participation is always voluntary. Because of the sensitive nature of the topics and the power dynamics between the adult developers and young participants, it is important to let the participants know that there are no right or wrong answers, they can decline to answer any question and they can stop the session if they feel uncomfortable. Another example of a safeguarding protocol is working with local implementing partners to provide access to counselors and resources after the sessions, in case participants need additional health information or support.

Fun. YLabs begins workshops with warm-up games, drawing and other activities that help young participants relax. Young people are often bored by long presentations, so YLabs uses activities that include more “showing” activities to keep young people engaged. Role-playing games are particularly useful because they provide young people with an energizing and enjoyable opportunity to share their own stories and provide the development team with rich data and nuances. Other engaging activities include mapping and card sorting, which are helpful for understanding how young people relate to their friends, family and community. Bold colors, visual designs, costumes and music can help make the session feel more like a party than a formal interview.



Safeguarding refers to actions taken to ensure that participants are protected from harm. Child safeguarding in research settings applies to situations in which researchers think children (those under age 18) may be at risk and in need of protection from abuse and maltreatment.





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The Challenge Initiative [internet]. **AYSRH toolkit: advocating for youth-friendly cities: youth participation & engagement.** Available from: <https://tciurbanhealth.org/courses/adolescent-youth-sexual-reproductive-health-toolkit-advocacy/lessons/youth-participation/>



Partnership for Maternal, Newborn & Child Health. **Global consensus statement: meaningful adolescent & youth engagement.** Available from: <https://www.who.int/pmnch/mye-statement.pdf>



United Nations Population Fund. **Guidance on enhancing youth participation in East and Southern Africa: 2018 report.** Available from: <https://esaro.unfpa.org/sites/default/files/pub-pdf/GUIDANCE%20ON%20ENHANCING%20YOUTH%20PARTICIPATION%20IN%20ESA.pdf>



United States Agency for International Development. **Youth engagement in development: effective approaches and action-oriented recommendations for the field.** Washington, DC: USAID; 2014.





Involve the right people at the right time

Each part of the process requires different expertise, input and buy-in. Involving the right people at the right time means knowing who should be at the table, for what purpose and at what point in the process. Some people or organizations may be involved throughout the entire process, but at different levels. The core team members should know their own roles and identify the expertise they will need at particular times—for example, expertise in digital technologies or promotion and marketing. Team members should perform only the tasks they are trained for and capable of doing, while allowing others on the team or other participants to contribute their skills when and where needed.

The core team involved throughout the whole process may include young people, a project manager, a financial manager, researchers, behavioural and data scientists, health content-area experts, digital health specialists, implementing partners (such as local organizations or NGOs), M&E analysts, representatives from funding organizations, and representatives from local and national government (including the ministry of health, ministry of information and communications technology and possibly the ministry of finance). Some team members may have the experience and affiliation to fulfill more than one role. All team members who work with young people should have skills and training in providing a safe and engaging experience for young collaborators.

Additional participants who should be kept informed and consulted throughout the process may include telecommunications partners, mobile network operators, recruiting partners (such as schools or local youth networks), local policymakers, civil society organizations, marketing organizations and significant figures for young people (including parents, schools, educators, clinicians and youth influencers).



World Health Organization. **Digital implementation investment guide (DIIG): integrating digital interventions into health programmes. Chapter 2: form the team and establish goals.** Geneva: WHO; 2020.



World Health Organization. **The MAPS toolkit: mHealth assessment and planning for scale. Axis 5: operations.** Geneva: WHO; 2015.



World Health Organization. **Monitoring and evaluating digital health interventions: a practical guide to conducting research and assessment. Chapter 2: setting the stage for monitoring and evaluation.** Geneva: WHO; 2016.



World Health Organization and PATH. **Planning an information systems project: a toolkit for public health managers. Step 2: form your team.** Seattle: PATH; 2013.





Make decisions based on data and evidence

Every activity and decision should be supported by quantitative and qualitative data and evidence, which will serve as a check on intuition and ensure that the intervention is aligned with actual user needs and preferences. Each stage requires collecting data and evidence and factoring it into the decision-making process.



Berman G, Powell J, Garcia Herranz M. **Ethical considerations when using social media for evidence generation**. Innocenti Research Briefs no. 2018–20. Florence, Italy: UNICEF Office of Research; 2018.



Principles for Digital Development [internet]. **Be data driven**. Available from: <https://digitalprinciples.org/principle/be-data-driven/>



World Health Organization. **Digital implementation investment guide (DIIG): integrating digital interventions into health programmes. Chapter 8: monitor the implementation and use data effectively**. Geneva: WHO; 2020.



World Health Organization. **The MAPS toolkit: mHealth assessment and planning for Scale. Axis 4: technology and architecture**. Geneva: WHO; 2015.



Jolly S, Oosterhoff P, Faith B, Braeken D, Shephard K. **A review of the evidence: sexuality education for young people in digital spaces**. UNESCO; 2020. Available from: <https://unesdoc.unesco.org/ark:/48223/pf0000373885>



Paul F, Thompson K, Gupta N. **Information support connection: How are young people engaging with digital spaces to learn about bodies, sex and relationships?** UNESCO; 2020. Available from: <https://unesdoc.unesco.org/ark:/48223/pf0000373884>



Promote safety, privacy and ethical standards

Young collaborators and future users should be protected from potential abuse, incompetence and violations of privacy (35). The information and data they provide should be kept confidential, and they should be able to decide how much information they want to reveal and to whom (35). The following are key considerations for ensuring that young people are kept safe, their privacy is respected and ethical standards are followed:

- Use appropriate terminology when describing young people. A range of terminology applies to adolescents—for example, *child*, *minor*, *juvenile*, *teenager*, *youth* and *ward*. Although these terms may seem similar and may overlap in meaning, they have specific legal, social, cultural and health connotations and implications. Their definitions also vary within and between countries, within and between regions, and even at the international level because of different social and cultural assumptions (36).
- Establish processes for obtaining informed consent for young people's participation, particularly for those under age 18 (36). Married young people under age 18 are often considered emancipated and legally capable of giving consent; unmarried people under age 18 may assent to participate but still need formal consent from a parent or guardian (37).



- Respect, protect and ensure young people's right to privacy and their right to share, access and receive information.
- In some cases, the personal information or stories that young people disclose may need to be reported to relevant parties as an ethical or legal obligation, even though it may jeopardize the trust being built with them. For example, a young person may have a serious illness that requires medical intervention, be at risk of harming themselves or others, or be at risk of neglect or abuse (36).

The specifics of keeping young people safe, ensuring their privacy and maintaining ethical standards will depend on the delivery channel of the intervention, the context in which the intervention is being implemented and the laws and regulations of the country. This will affect what data are collected; how data are collected, used, stored and shared; and how confidential information and the identities of young people are protected. However, it should be standard practice to acknowledge the sensitivity of the data being collected, to be transparent about how the data will be collected and used, and to develop, adopt and enforce security policies to protect the data (26).



Council for International Organizations of Medical Sciences. **International ethical guidelines for health-related research involving humans, fourth edition.** Geneva: CIOMS; 2016.



Graham A, Powell M, Taylor N, Anderson D, Fitzgerald R. **Ethical research involving children.** Florence, Italy: UNICEF Office of Research; 2013.



Population Services International. **Ethics in youth-powered program design: ethics and integrity in human-centered design for adolescent and youth sexual and reproductive health.** Washington, DC; 2018.



Principles for Digital Development [internet]. **Address privacy & security.** Available from: <https://digitalprinciples.org/principle/address-privacy-security/>



Raftree, L. **Digital safeguarding tips and guidance.** Girl Effect; 2018. Available from: https://prd-girlieffect-corp.s3.amazonaws.com/documents/Digital_Safeguarding_-_FINAL.pdf



United Nations Development Group. **Data privacy, ethics and protection: guidance note on big data for achievement of the 2030 agenda.** UNDG. Available from: https://unsdg.un.org/sites/default/files/UNDG_BigData_final_web.pdf



World Health Organization. **Guidance on ethical considerations in planning and reviewing research studies on sexual and reproductive health in adolescents.** Geneva: WHO; 2018.



UNICEF East Asia & Pacific. **Safeguarding girls and boys: when chatbots answer their private questions. UNICEF Learning Brief: Innovation and Technology for Gender Equality.** April 2020. Available from: <https://www.unicef.org/eap/media/5376/file/Chatbots%20and%20safeguarding.pdf>



Chapter 4

PLANNING the intervention



■ Conduct a landscape analysis and a needs assessment.

A landscape analysis and a needs assessment collect information needed to generate an understanding of the needs and preferences of young people and the implementing environment, including existing services, interventions, stakeholders and available resources.

■ Determine whether digital is optimal.

Digital health interventions may not always be the preferred or most effective way to reach a young population. Therefore, after assessing the needs of the population and the existing implementing environment, the project team must decide whether to move forward with a digital health intervention.

■ Develop a theory-driven approach.

A theory-driven approach provides a conceptual model outlining what activities are needed as part of the digital health intervention; this underpins the entire intervention and informs the roles that various components of the intervention will play in achieving outcomes.

Conduct a landscape analysis and a needs assessment

Digital health interventions should not be standalone solutions; rather, they should complement and strategically integrate with existing health interventions. Therefore, it is crucial to understand not only young people's actual needs but also the implementing environment, what already exists and how a potential digital health intervention can enhance current efforts.

A landscape analysis and a needs assessment can provide a deeper understanding of and objective information about the local context, the target audience, and implementing constraints and opportunities.

- A **landscape analysis** gathers information on the mobile technology infrastructure, existing relevant digital and nondigital health interventions, and relevant organizations and community groups working to improve the health of young people.
- A **needs assessment** determines who needs the intervention, how great their need is and what activities will best address those needs (25).


Both activities should be revisited routinely to understand the changing digital and health landscapes and users' needs and as a way to collect data for continuous improvement of the intervention.

Integrating digital and nondigital interventions


As part of their Youth Champions Initiative in India, [Restless Development](#) developed SRH curricula, including an in-school module and an out-of-school module connected to student afterschool clubs. Both are delivered in person by youth leaders trained in providing SRH information to their peers. The organization also developed a mobile app called M-Sathi to further engage students outside of school and inspire excitement about the curriculum and SRH information. M-Sathi serves as a digital extension of the program and provides SRH information in an engaging way, such as through animated videos. It also allows users to anonymously ask questions on sensitive topics. The in-person curricula, in turn, refer to the M-Sathi app. Together, these digital and nondigital interventions support and reinforce SRH messages.

Case study







The landscape analysis and needs assessment may include literature reviews, community consultations and possibly formative research (described below). Data from each source should be made available to all members of the core team and should be clearly cited so team members can discuss their credibility and reliability. It is best to triangulate data from multiple sources.



→ A **literature review** is a comprehensive summary of previously published research and documents on the topic of interest. It should include both traditional and nontraditional sources. Traditional sources include peer-reviewed published literature as well as grey literature. Important nontraditional sources include reports or data from telecom providers or the app store and social media metrics. Young people can help guide the literature review by recommending nontraditional sources. These “digital insight” sources will help identify the relevant actors, organizations and stakeholders, what tools are currently used, what digital trends are emerging and what is happening in the community. However, these sources may not have age-disaggregated data for adolescents/youth.

→ **Community consultations** are the initial form of outreach to the community in which the intervention will be developed and implemented; they serve to engage people in the process, build relationships and partnerships, and help the project team gain an understanding of the context, sometimes using formative research methods (38, 39). Since a literature review depends on the availability and completeness of existing data and their relevance to the specific community, consulting with key people in the community can help fill in the gaps (38). As part of the community consultations, it is important to talk to experts, regulatory bodies and other industry leaders early in the process, to map the existing platforms and products as well as the regulatory landscape. This will prevent duplication of efforts and help determine the feasibility of the intervention.



→ **Formative research** is the use of research methods (often qualitative) to inform the development of an intervention. Formative research focuses on factors that influence health outcomes, including the behaviours, attitudes and needs of young people, in order to develop digital health interventions that are appropriate to the particular context (24). Young people are key informants in this process, and they can also identify others who should be included because of their involvement in young people’s lives, such as parents, community leaders, teachers, service providers and even government representatives from relevant ministries. Young people can also be trained as data collectors for formative research. Formative research can take the form of individual interviews, focus group discussions (in a “safe space” in which young people are not influenced to respond in certain ways by other people in the room) or observation of young people in their everyday environments (25, 40).

Using online polls to understand users’ health needs

UNICEF uses a social messaging tool called U-Report around the world to gain insight into the youth population and provide young people with relevant information. In Jamaica, young people voluntarily participate in polls twice a month via SMS messages (made free through a partnership with Flow Mobile), Facebook Messenger or WhatsApp; the data are immediately made available to the public on the Jamaica U-Report website. This polling method allows UNICEF to ensure constant engagement with young people to understand their needs. For example, three mental health polls conducted by [U-Report Jamaica](#) in 2018 found that 53% of young Jamaican respondents had considered suicide. This information prompted UNICEF to provide tools and resources on the U-Report platform related to mental health, including an online self-screening test for anxiety. U-Report directed those who needed further help to services provided by the Jamaican Ministry of Health and developed a suicide prevention module in the form of a chatbot delivered on U-Report.

Case study



Landscape analysis and needs assessment



Good data sources may be lacking, particularly in the area of young people's use of digital technology. Phone-sharing habits, age restrictions on service or website use, and legal restrictions on data storage for young users can pose challenges to understanding young people's interaction with digital sources.

Table 1 lists examples of questions that can be answered through a combination of literature review, community consultation and formative research. It is important to keep in mind when collecting and interpreting this information that young people are a diverse group of individuals with varying needs.

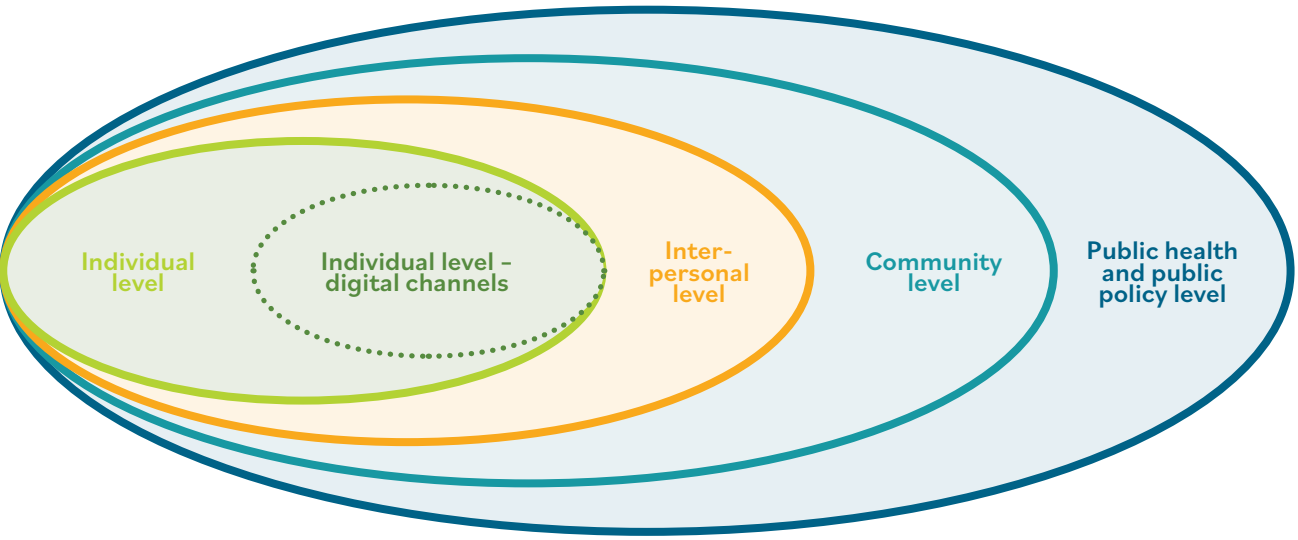
Table 1.

Examples of questions addressed in a landscape analysis or needs assessment

Individual level
Who are the intended users of the intervention?
What are their literacy and digital literacy levels?
Where are they geographically located?
What are their education levels?
What are their health interests, concerns and priorities?
Individual level - digital channels
What devices are young people using?
What digital channels, apps and websites are most popular among them?
What are they using the technology and delivery channels for?
What are their digital habits, including when and where they use their devices and how much time they spend on them?
How affordable is internet/phone access for young people?
What does phone ownership look like among young people? Do they share phones?
In what ways do young people safeguard digital information in their day-to-day lives?
Are there privacy and confidentiality limitations in their current patterns of technology use (e.g., accessing the internet at internet cafes, sharing phones)?
Interpersonal level
What are young people's family environments like?
What are the social influences on young people?
How do they engage with each other as family members, friends or romantic partners?



Community level
What health interventions and programs, both digital and nondigital, already exist for young people in the community?
What content already exists for young people on the intervention topic?
What types of people in the community are involved with young people?
Who are potential partners for developing, testing, delivering or promoting the intervention?
What technology or delivery channels are perceived to have the greatest reach and influence in the community?
What community-level challenges are associated with young people accessing relevant health information or services?
What are the social expectations regarding young people's roles, behaviours and positions in their families and communities?
What types of information are young people seeking out or lacking that a digital health intervention could help address?
Public health and public policy level
What current health statistics are available on young people?
What regional or national health programs or campaigns are currently in progress?
What current health policies focus on young people?
What current national policies relate to digital programming?
What is the state of the region or country's digital and technology infrastructure and capabilities?
What are the relevant local, regional and international laws/standards around consent and data protection?





Secure **adequate resources** for conducting a landscape analysis and a needs assessment; these are often underfunded activities.

Enlist **research partners** to systematically undertake the steps required for a landscape analysis and a needs assessment.



Plan enough time for these activities, especially formative research, which may require ethical approvals from institutional review boards and may involve identifying young people and others to interview and consult. **Communicate the timeline** to funders early in the process.



Engage not only young people but also **key community gatekeepers** such as community leaders, parents and teachers to determine the acceptability of the intended intervention.

Clearly **document the steps** taken during the landscape analysis and the needs assessment; this will be helpful when developing the intervention.



Do a thorough analysis of **existing digital products** locally and globally, to avoid duplication of what is already in use.



Look ahead to implementation by identifying **successful existing promotion and marketing efforts** for health- and non-health-related content that young people are already sharing. Build on what they are doing and find ways to collaborate.



Ensure **ethical research practices**, including appropriate training in human subjects research, appropriate procedures for research staff, and robust assent/consent processes and data protection measures.





Partnering to conduct focus groups and interviews with young people

Case study

The London School of Hygiene and Tropical Medicine (LSHTM) partnered with the International Planned Parenthood Federation (IPPF) Member Associations in Tajikistan, Bolivia and Palestine to develop digital health interventions on contraception for delivery by mobile phone to young people. LSHTM provided expertise in conducting needs assessments, and the IPPF Member Associations contributed local expertise in implementing SRHR programming and strong community relationships that provided context and access to the implementing environments.

Focus group discussions and interviews with young people were led by researchers who were native speakers of the local language. The focus group discussions were divided by gender and led by a facilitator of the same gender as the participants. All youth participants were over the age of informed consent—age 14 in Tajikistan and age 18 in Bolivia and Palestine. Involving younger adolescents would have required obtaining parental consent, which would not have been appropriate because of the stigma around sexual activity among young people in all three countries. Despite the stigma, the young people were willing participants in the focus groups and interviews. They engaged in lively discussions about contraception and sexual health and provided insights into their beliefs about contraception, the stigmatizing environment and their fears of being judged for seeking SRHR information and services.

Resources



Frog Design. **Collective action toolkit**. Available from: <https://www.frogdesign.com/work/frog-collective-action-toolkit>



Global digital health index. Available from: <https://www.digitalhealthindex.org/>



Measure Evaluation. **Health information systems interoperability maturity toolkit**. Available from: <https://www.measureevaluation.org/resources/tools/health-information-systems-interoperability-toolkit>



World Health Organization. **Digital implementation investment guide (DIIG): integrating digital interventions into health programmes. Chapter 4: determine appropriate digital health interventions**. Geneva: WHO; 2020.



World Health Organization. **The MAPS toolkit: mHealth assessment and planning for scale. Axis 1: groundwork**. Geneva: WHO; 2015.



World Health Organization [internet]. **Digital Health Atlas**. Available from: <https://digitalhealthatlas.org/en/-/>



Landscape analysis and needs assessment

Determine whether digital is optimal



The perception of digital health as an “innovative” approach to engaging and empowering a young, digitally connected generation may lead to enthusiasm about developing a digital health intervention (or a digital component of a broader intervention) that is incompatible with the needs and preferences of the intended users. It is important to reflect on the findings of the landscape analysis and the needs assessment to confirm that digital technology is the most appropriate platform for the intervention content.

This determination should be guided by an understanding of the opportunities and challenges of using a digital platform in the community of interest. Factors to consider might include the preferences of the intended users, their level of digital technology access, the existence of similar digital platforms and tools, the sophistication of the available digital infrastructure and the feasibility of developing a digital tool given budgets and timelines.

Questions to consider when reviewing the information collected and deciding how to proceed include:

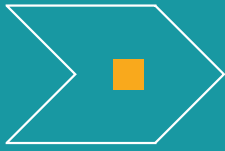
- Is a digital health intervention an appropriate strategy to address the health needs of the target group?
- More specifically, is it the right fit for the intended users as well as for the implementing environment? (For example, it may be the right fit for young people but not for implementation in a school.)
- How does the intervention fit with other existing health interventions or services? How will it be aligned with or integrated into them?
- Will access to the intervention be equitable, or will it exacerbate existing inequities in access to information?

Tip



Carefully **cost and map out a timeline** for the development of the digital intervention, building in time for rounds of user testing and refinement and exploring whether the team has the capacity, time and budget to build the intervention.





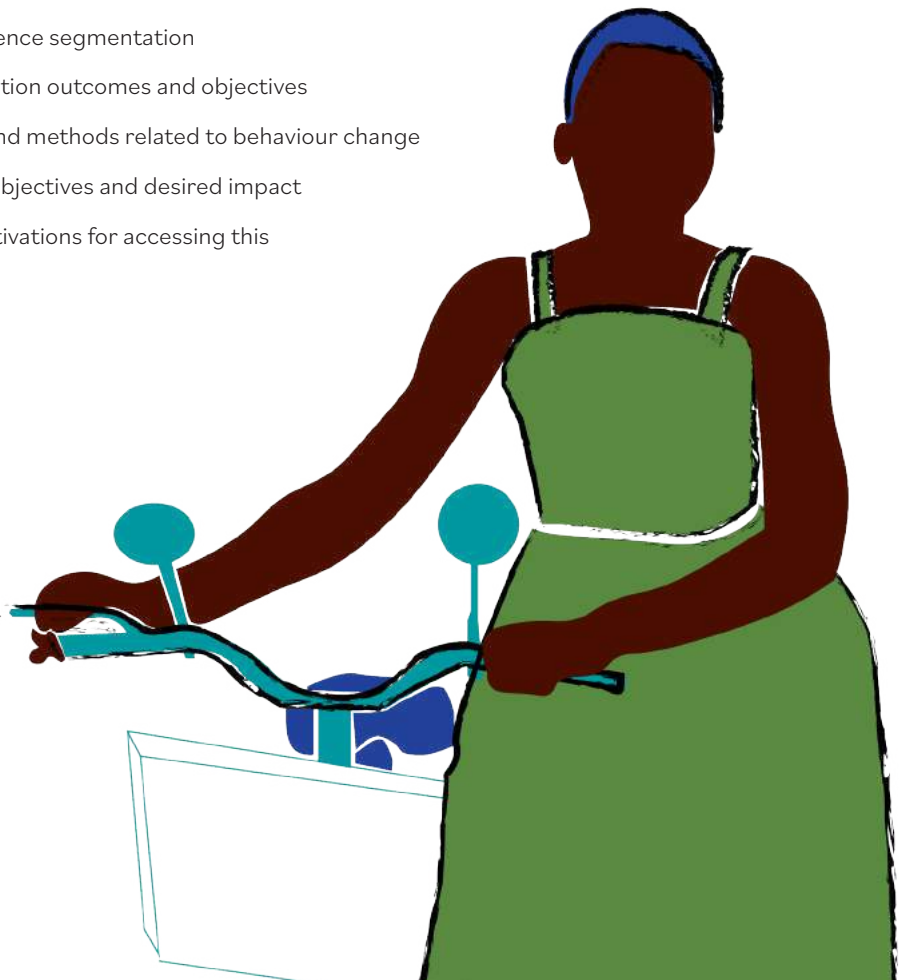
Develop a theory-driven approach

A theory-driven approach produces a causal theory that connects the planned activities in the intervention with the intended outcomes. Interventions that are developed and evaluated using a theory-driven approach use the understanding gained in the landscape analysis and the needs assessment to identify how the intervention can effect change and what activities will result in those changes.

This approach begins by specifying the desired outcomes of the intervention and then mapping backwards along a causal pathway to the activities and conditions that will lead to the outcomes and articulating how the changes will happen (41). It also involves identifying relevant indicators that will tie the intervention to the desired outcomes. These indicators will underpin the M&E plan, which can also be developed at this stage.

A theory-driven approach should be based on existing theories, evidence and reasonable assumptions as well as risks and mitigation strategies. It should be revisited throughout the development and implementation process. Key elements include:

- Defining the audience and audience segmentation
- Clearly articulating the intervention outcomes and objectives
- Considering existing theories and methods related to behaviour change
- Reflecting on the intervention objectives and desired impact
- Uncovering young people's motivations for accessing this type of health information





Be realistic when **identifying expected outcomes** of the intervention. If outcomes are too dependent on broader factors outside the users' control, it may be difficult to observe meaningful changes and attribute those changes to the intervention. A **theory-driven approach** can include indicators for changes directly influenced by the intervention as well as intermediate and longer-term outcomes that the intervention may influence to a lesser extent.

Look to **existing youth-related results frameworks** and conceptual models as sources. A robust and diverse set of existing theories are available in the areas of behaviour change, communication and psychology, many of which have been tested in a variety of health contexts.



Ensure that the mapping of the theory-driven approach is a **consultative process** that includes facilitated workshops with relevant parties, including young people. Involving stakeholders in a workshop to develop the theory-driven approach can provide additional and **deeper insight**. This may also improve buy-in and engagement from stakeholders who could be collaborators for implementation.



Useful **workshop strategies** include using different colors of sticky notes on a large wall to depict the relationship between activities and desired outcomes (immediate, intermediate and long-term), individual and external factors and conditions needed to achieve the desired outcomes, activities needed to move from one outcome to the next, the rationale for each link in the causal pathway, and M&E indicators.



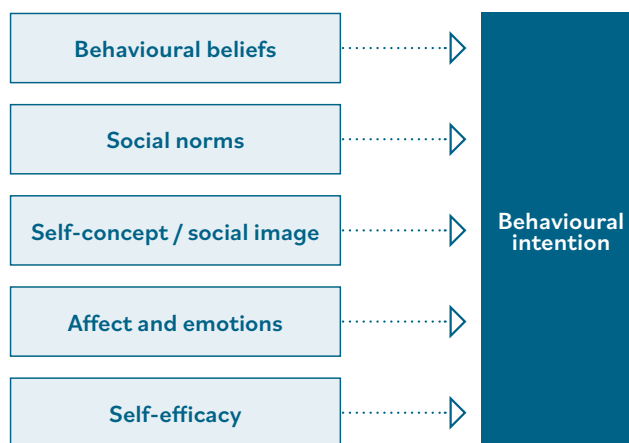
Finding the underlying theory in two interventions

The [Unified Theory of Behaviour](#) describes the factors that affect behavioural intention and how behavioural intention and external factors affect behaviour. (See the two figures below.) [Planned Parenthood Federation of America](#) (PPFA) has used the Unified Theory of Behaviour to inform the development of digital interventions, including an educational video series about consent and a birth control and period tracker application.

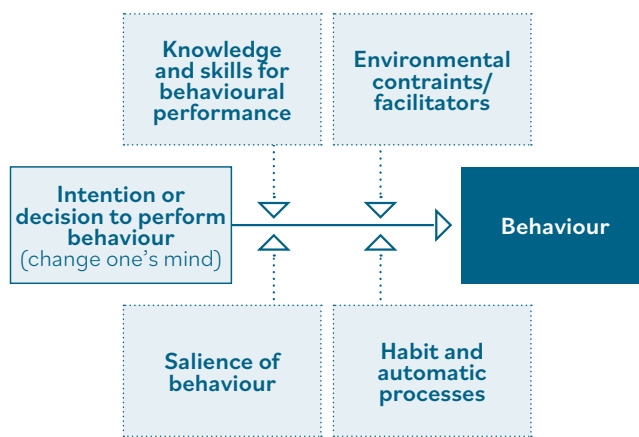
In 2016, PPFA released the video series on YouTube to help young people understand consent and encourage them to ask for consent in their sexual relationships. The videos promote the **behavioural belief** that asking for consent will lead to better sex. They also **normalize** asking for consent by emphasizing that people who are like the viewer generally ask for consent. The cast of the series is diverse in terms of race, gender and sexual orientation, which allows viewers to relate the situations to their **self-concept**. The sexy and fun conversations push against negative **emotions** (such as fear or discomfort) that are often associated with asking for consent. Finally, by providing actual language to comfortably ask for consent, the series strengthens viewers' sense of **self-efficacy**.

In 2016, PPFA also launched Spot On Period Tracker, an app that allows users to track and manage their menstrual periods and birth control use. The app focuses primarily on external factors that can lead to **behaviour change**, since those who download the app probably want to track their birth control use and/or periods. For birth control, the app targets users' **knowledge and skills**, uses a reminder system to create new **habits** and provides notifications to emphasize the **salience** of taking birth control regularly. It also asks users questions to account for **environmental constraints**, such as their ability to access their birth control earlier than usual if medical guidance recommends it. These constraints are built into algorithms that personalize next steps if the user has made a mistake with her birth control.

Determinants of behavioural intention



Moderators of the intention-behaviour relationship



Adapted from Jaccard and Levitz (2013)

Case study



Develop a theory-driven approach



Anderson A. **The community builder's approach to theory of change: a practical guide to theory development.** New York: Aspen Institute; 2005.



De Silva MJ, Breuer E, Lee L, Asher L, Chowdhary N, Lund C, et al. **Theory of change: a theory-driven approach to enhance the Medical Research Council's framework for complex interventions.** *Trials.* 2014;15:267.



Jaccard J, Levitz, N. **Parent-based interventions to reduce adolescent problem behaviors: new directions for self-regulation approaches.** In Oettingen GG, Gollwitzer P, editors. *Self-regulation in adolescence.* New York: Cambridge University Press; 2013.



Maini R, Mounier-Jack S, Borghi J. **How to and how not to develop a theory of change to evaluate a complex intervention: reflections on an experience in the Democratic Republic of Congo.** *BMJ Global Health.* 2018;3:e000617.



Mohr DC, Schueller SM, Montague E, Burns MN, Rashidi P. **The behavioral intervention technology model: an integrated conceptual and technological framework for eHealth and mHealth interventions.** *J Med Internet Res.* 2014;16(6):e146.



Vogel I. **Review of the use of theory of change in international development: review report.** London: United Kingdom Department of International Development; 2012.



World Health Organization. **Monitoring and evaluating digital health interventions: a practical guide to conducting research and assessment. Chapter 2: setting the stage for monitoring and evaluation.** Geneva: WHO; 2016.



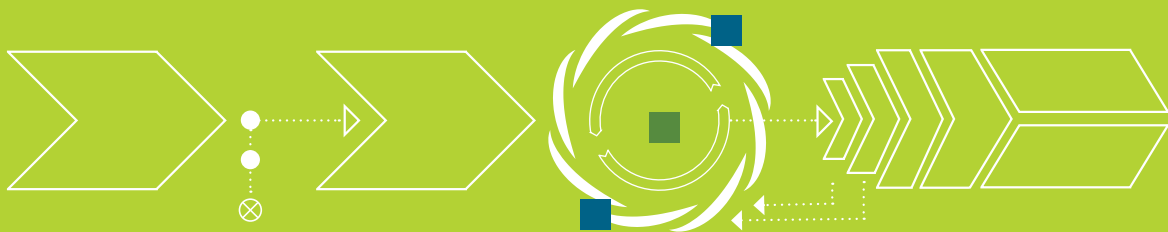
World Health Organization and PATH. **Planning an information systems project: a toolkit for public health managers. Step 3: define what your system needs to do.** Seattle: PATH; 2013.



Chapter 5



DEVELOPING the intervention



■ Develop a content and delivery strategy.

Determine how evidence-based health content will be delivered to young people through the most appropriate digital means.

■ Create a series of prototypes.

The content development and design process is not linear—it involves designing and refining the intervention in a manner that is not resource-intensive. Prototyping means making multiple attempts at constructing different versions of what the intervention will look like, each getting progressively closer to a version that is ready for real-world implementation (a phased launch).



Develop a content and delivery strategy

Content and delivery are at the core of the intervention. Both should be informed by the theory-driven approach and developed based on information collected during the landscape analysis and the needs assessment.

- **Content** is the evidence-based health education information—aligned with recommended health practices and international, regional and national standards—that will be shared with young people through the digital health intervention (16). Content can be in various media formats, including text, images, video and other multimedia. Content must be accurate and appealing in order to ensure that users understand it and find it interesting and relevant to their needs and circumstances.
- **Delivery** refers to the use of communications mechanisms and software systems to reach young people with health content (16). The content will not reach the intended users without a thoughtful selection of delivery mechanisms.

The content and/or delivery mechanisms may be adopted or adapted from other interventions, or they may need to be developed for the specific health issue and intended users. In either case, a content and delivery strategy is needed to guide the creation and curation of content and provide clarity in the development and implementation stages.

Creating a content and delivery strategy involves the following tasks:

- Define a persona and voice for the intervention that will be used consistently across channels.
- Identify user personas and differentiate them by role, daily routines, motivation and how they would interact with the digital health intervention (42).
- Determine the content frequency and dosage, service duration, language use, style and approach to translation.
- Identify key health education messages for real-world and digital campaigns and marketing efforts.
- Determine how the content will be managed, including how often and when it will be reviewed and scheduled for uploading.
- Preliminarily plan promotion and marketing content if possible.



Human-centred design

The people designing digital health interventions for young people are usually adults (42). To better understand and work with young people, they can benefit from using an approach known as *human-centred design* (or *user-centred design*), which focuses on users' needs, wants and limitations (25, 43). Designing with the intended users in mind is crucial to developing successful interventions (25, 44). Key human-centred design approaches include:

- » **Personas.** Personas are generic descriptions of the types of people involved in or benefiting from the intervention (45). Personas help the core team and other participants view the objectives and challenges of the effort from the vantage point of the people who will receive the intervention. Personas also help align the team and other participants around shared definitions and perceptions. Finally, they provide a common point of reference for those who deliver the intervention, those who monitor or supervise it and, ultimately, those who receive it (45).
- » **User journeys.** User journeys are a way to visualize the user's experience with the intervention from beginning to end, from the moment of awareness of the intervention to the decision to engage with it, the first interactions, subsequent engagement with it and being affected by it (46).
- » **Co-design workshops.** Co-design workshops convene the intended users, bring them into the design process (46) and build trust. The goal of such a workshop is to identify what health information the intended users want to know about and how they want the information delivered to them, including the look and feel of the digital solution. This is an opportunity to collaborate with young people and involve them in design decisions, not just to hear from them (46). The workshop should be a safe space where young people can discuss these health topics openly and share what they need most out of the intervention.



When using human-centred design approaches, be aware of any trauma that may have affected young people and include appropriate support measures. It may be helpful to have moderators or other professionals lead group discussions and have counselors or linkages to services available to participants after the discussions.

Resource



YTH Initiative at ETR. **Trauma-Informed Youth-Centered Health Design (TIYCHD)**. Available from: <https://yth.org/projects/tiychd/>

Keeping content fresh

Love Matters is a global program that provides information to young people on relationships, sex and love. One feature of the program is a discussion board where users can post questions and comments on SRH topics. The [Love Matters India](#) (LMI) program employs well-trained “sexperts” and moderators who respond to the posts on the discussion board with timely, quality information, personalized answers and emotional support.

The discussion board also provides insights into the SRH topics young people are talking about and interested in. LMI uses these insights to guide ongoing market research and focus group discussions. The LMI team is on the ground talking to young people across India to understand their different perspectives across different regions of the country and different demographic groups. This information helps them create and update user personas and helps them determine the content of posts on the LMI bilingual website and social media platforms and in digital toolkits.



Case study



Develop a content and delivery strategy

The importance of youth-driven workshops

The digital communication channels most favored by young people are always changing and may differ by location. When [YTH](#) (Youth Tech Health), an initiative of ETR, was developing an intervention called [ZonaSegura](#) to address dating violence among Honduran teens (in partnership with the Public Health Institute's GOJoven Honduras), the initial plan was to create a mobile application for girls and an SMS intervention for all young people. YTH representatives visited Honduras on two occasions to hold workshops with about 35 teens (aged 14–19). Within the first minutes of the first workshop, the teens reported never using or receiving SMS messages; they communicated instead via WhatsApp—the most popular platform among the intervention's target audience. This vital information redirected plans for the delivery mechanism for ZonaSegura. YTH's previous messaging interventions used SMS, but these projects were primarily located in the United States.

YTH invited young people to help generate ideas during the second workshop. Participants were asked how they would talk to their friends about healthy relationships and toxic masculinity and what kinds of messages their friends would want to receive in Instagram- or Pinterest-like inspirational quotes. After they were shown examples, participants were given 10 minutes to brainstorm ideas and write messages on sticky notes, many of which were directly incorporated into ZonaSegura.

YTH provided the following tips for creating a youth-friendly environment for focus groups and co-design workshops:

- » **Create a welcoming environment.** In the United States, for example, YTH provides familiar and interactive objects and materials such as fidget spinners, playdough and pipe cleaners.
- » **A welcoming environment is not the same in all cultures.** During workshops in Honduras, the YTH team learned that it was considered rude to not offer coffee. Organizations should rely on in-country partners or contacts to gain these kinds of insights and nuanced information ahead of time. Tailoring the environment to the participants and adhering to common cultural practices can have a positive impact on the outcome of workshops.
- » **Hold sessions in familiar spaces.** Young people are likely to be more engaged in a classroom or cafe than in a hotel conference room.



Case study

Co-designing with more than young people

One of YLabs' flagship projects is [CyberRwanda](#), a digital platform that aims to improve the health of peri-urban and urban adolescents (aged 12–19) in Rwanda and increase access to high-quality, youth-friendly services and contraceptive methods. While contraceptives are free or available through insurance in Rwandan health clinics, many young people prefer to not use those clinics because they lack privacy and young people perceive that they are a low priority for providers there. The YLabs team found that young people turned instead to neighborhood pharmacies that offered quick, private access to contraceptive methods and health products.

This important insight led YLabs to hold co-design workshops with pharmacists to learn about their attitudes toward young customers, understand the challenges pharmacies faced in fulfilling orders, and learn what would motivate them to use the digital platform. By working with the pharmacists to map the order fulfillment journey, the YLabs team was able to better understand their needs and challenges and design a product they would actually use.



Case study



-  Determine whether existing **content can be adapted** or new content is needed.
- Think about the appropriate **tone, explanations and examples** based on the context and culture.
 
-  Consider writing the content in the language it will be delivered in to avoid **translation challenges**.
-  Include **attention-grabbing, pertinent content** that motivates users to participate or engage.
- In addition to raising awareness about a health issue, include messages that educate young people about their **ability and right to seek health care**, along with any supportive laws and policies.
 
- Think about how **gender roles** may affect the acceptability of messaging, especially in regard to girls' rights.
 
-  Consider **accessibility and literacy** when determining both the content and the delivery channel, and consider including features such as audio, video and images.
- Consider using tools such as **artificial intelligence (AI) and machine learning** to create highly personalized engagement for users.
 
-  Factor in **time for editing and uploading** the content to the delivery channel.
-  Consider engaging a marketing and design firm, user experience developer, visual designer and/or content strategist/writer to help generate **ideas for promotion and marketing** of the intervention.
- If the intervention has a live component, ensure sufficient **funding for moderators of live chat** and conversations among users.
 





One topic, many angles and channels

The [Love Matters Arabic](#) (LMA) project, based in Egypt, holds a large meeting once a year to map out weekly content topics for the upcoming year. The topics, which are sometimes influenced by user comments and questions posted on the LMA discussion board, are explored on each LMA digital channel—the LMA website, Facebook, Twitter, YouTube and Instagram—but the channels take different angles, using messages that reinforce those found on the other channels.

Some topics are covered every year, but with the focus on a different aspect each time. For example, on the topic of family planning, one year the focus may be on the range of family planning methods, while the next year the focus may be on condoms and emergency contraception. In the third year, the focus may be on social influences and societal factors relating to family planning. In Egypt, newly married couples face strong pressures to have children, so the messages in that year might reinforce the idea that couples, not their families or friends, should decide when to have children.

Case study



It will take time to get necessary permissions, reviews and signoffs on content from relevant partners, including those in local and national government and gatekeepers/influencers.

Evidence-based content and content that young people need and want may not align with what is culturally or politically acceptable in the community or country.



Technology can amplify both good and bad. Misinformation is a huge risk and spreads increasingly quickly. At the same time, certain platforms may alter content or have filters that block valuable content. These factors may affect the choice of delivery channel.



Tips for selecting a delivery platform

- * Be aware of **national laws and regulations** relating to technical infrastructure.
- * Learn about platform **hosting requirements** and any **software licences** that may be required.
- * Keep in mind that the degree of **anonymity will differ** between public and private spaces on digital channels, which will affect young people's interactions and responses on those channels.
- * **Figure out the cost** to the project and to users of sending health information messages using the platform.
- * Find out whether the platform can deliver information in **more than one language**.
- * Find out what **kinds of data** the platform can collect and how this passive monitoring can be included in M&E plans.
- * Understand the **data security of the platform**, including how data will be stored, used and kept secure.
- * Find out what kinds of **interactivity with users** or between users is possible on the platform.
- * Think about what the **user interface** will look like and how the user will interact with it.
- * Make sure the platform allows users to **progress through the intervention** in an intuitive way.
- * Consult mobile network operators and aggregators to learn how the intervention will work **within the digital ecosystem** of the implementing environment.
- * Consider the **market and landscape**, such as smartphone penetration, the channels young people are currently using and what they trust or don't trust.
- * **Explore partnerships** with existing platforms that young people already use, to potentially build on their brand awareness and audience.



Develop a content and delivery strategy



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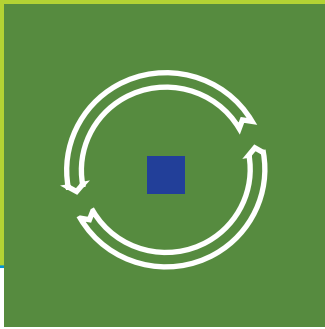


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Create a series of prototypes

The development of the intervention content and delivery platform should involve short, iterative cycles of creating, testing and revising potential designs and solutions (42). These prototypes should be informed by the information collected in the landscape analysis and the needs assessment and outlined in the intervention's theory-driven approach.

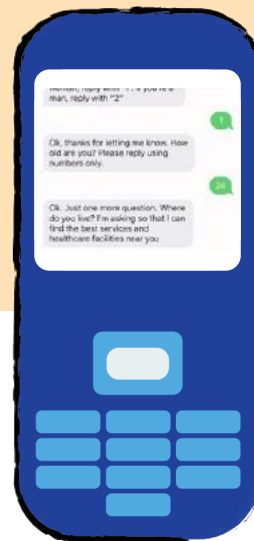
Initial prototypes are often nondigital, taking the form of quick mockups, content written on sticky notes, digital mockups on a phone or screenshot images of the potential intervention. Later prototypes may resemble a more mature version of the intervention. For digital interventions whose content is continuously developed, prototyping can be an ongoing process. All prototypes, from the earliest nondigital ones to the most mature digital ones, should be “beta tested” with young people so their feedback can be incorporated into the next version. This will ensure the relevance, appeal, functionality, technical stability and usability of the intervention (24).

Beta-testing prototypes may require conducting focus groups, interviews or workshops with young people or other stakeholders. Be sure to include a diverse cross-section of young people in terms of socioeconomic status, gender, age, educational level and geography. This will help ensure that the intervention can meet the highest-priority needs for the largest possible audience. These workshops will likely require a facilitator and/or interpreter.

Employing data-driven tools for continuous improvement

[Nivi](#) delivers AI-powered personalized health information through messages on popular messaging channels such as SMS, Facebook and WhatsApp. The Nivi platform collects and analyzes data collected through those channels and reported by users to identify the most effective messages and delivery channels and continually improve user engagement strategies and programs. This data-driven

approach does not replace focus groups or co-design workshops, but it can complement those other methods.



Case study



Create a series of prototypes



Test with users early on. Too often, developers wait until the intervention is almost completed—when substantial resources have already been invested—before testing it with users. Potential users, especially young people, may be unwilling to provide honest negative feedback about the design of a late-stage, polished-looking prototype.

Ensure sufficient time and funding for **multiple iterations** of mature prototypes.



Develop data systems to support collecting and analyzing user data, such as qualitative data from beta testers or data collected through the digital system. **Determine the key metrics** that the team will track during the phased launch to evaluate the success of the intervention.



Budget time and resources to convene **prototyping workshops** as well as debrief and incorporate feedback after the workshops. Participant incentives (such as payment for participation) may also be required.

Even during beta testing, the product must **comply with local laws and regulations** relating to data protection. It may be helpful to conduct a risk assessment and create a mitigation plan to identify any legal, ethical or safety risks before the phased launch begins.



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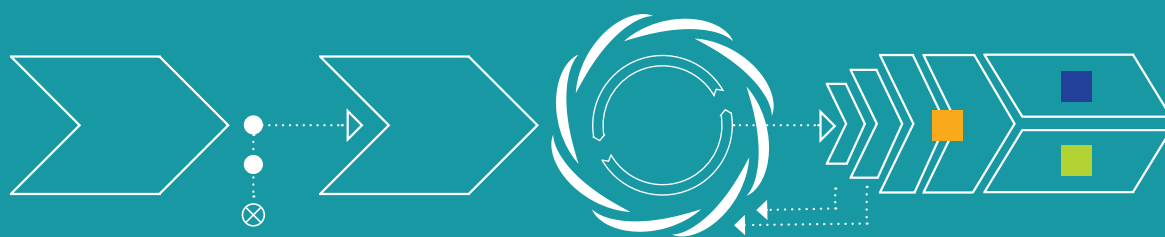
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IMPLEMENTING the intervention



■ Carry out a phased launch.

A phased release of the digital health intervention into real-world conditions will allow opportunities to refine and improve it before full-scale implementation.

■ Create a promotion and marketing campaign.

When the intervention is ready for full implementation, these activities will publicize and disseminate the intervention to increase engagement. They can also help sensitize the broader community about the intervention.

■ Conduct monitoring and evaluation.

M&E efforts involve continuously collecting information to understand whether the intervention is meeting objectives and what effect it is having on broader health outcomes.



Carry out a phased launch



During a phased launch, the intervention is released in the real world under controlled conditions, to allow for refinements and improvements before full-scale implementation. For example, the intervention might initially be launched to a limited audience to collect user feedback on usability issues, software bugs or other problems. Phased launches also generate a wealth of information via data analytics and evaluation results, which can be fed back into the design process to inform and improve the intervention.

A phased launch also helps reduce the risk of rapid attrition by users due to product glitches or usability challenges. In addition, it creates an opportunity to seek user testimonials and cultivate champions of the intervention to promote broader uptake later on.

Data collection during the phased launch

The phased launch involves active data collection. Investing in data collection and use during this part of the process can help avoid loss of time and momentum later due to users encountering issues during a broader rollout. The data can help answer these questions:

- Are the recruitment and enrollment methods appropriate and working as intended?
- Is the intervention usable and acceptable to the target audience?
- What is the user experience like, and what are the popular and unpopular features?
- Are users encountering any problems?
- Is the content being rolled out and delivered according to plan?
- Is the content being understood and interpreted as intended?
- What are the barriers to young people using the intervention?
- What are the barriers to implementing the intervention?

Using data to ensure alignment with intervention goals

Nivi uses health messages to counsel individuals and connect them to health services. It offers use of its platform on a subscription basis to nonprofits, commercial entities and public-sector agencies to expand their marketing outreach, health education efforts and service uptake. For example, Population Services Kenya (PSK) used Nivi to deliver targeted information about contraceptives and access to contraceptives to university students around Nairobi, Kenya. PSK promoted its Nivi-embedded program via advertising at a drama festival, a radio campaign and social events where university students served as ambassadors.

Using Nivi, PSK tracked the demographics and engagement patterns in each channel, which showed that the target audience was submitting questions on a broader-than-intended range of SRH topics and the focus on contraceptives and service uptake was too diffuse. To redirect the focus, PSK updated the radio campaign with information more specific to contraception. Nivi data immediately showed an increase in contraception-related questions that led to more referrals for contraceptive services. This real-time, low-cost feedback about the effectiveness of messages and engagement methods increased knowledge of contraception, referrals and service use.



Case study



Tips



Consider implementing an **early, small-scale launch** in a limited geographical area as an initial step in the phased launch.

Budget sufficient time and financial resources for **design and software refinements** during the phased launch.



Ensure that the core team is aware of the phased launch and is **ready to respond** to any issues that emerge, and prepare all members to reconvene to modify the intervention based on the feedback and data received.



Create a system with a dedicated point person or team to **collect and track responses** to user feedback, act on any issues that are identified and ensure that the system is capturing data as intended.

Be prepared to **pivot based on the feedback**, even at this advanced stage of the project.



During the phased launch, identify **potential product champions** who can promote the intervention among their peers later on. Consider partnering with **online influencers** during the early release phases.



Confirm that the **core functions of the intervention** are working as intended before adding new features.



Allow users to **continue using the intervention** during updates and changes. Taking an intervention offline suddenly can be detrimental to users' confidence in the product.



Do not invest in extensive marketing during the phased launch; major flaws may emerge that could damage confidence in the product.

Resource



World Health Organization. **Monitoring and evaluating digital health interventions: a practical guide to conducting research and assessment. Chapter 1: overview of monitoring and evaluation. Chapter 2: setting the stage for monitoring and evaluation.** Geneva: WHO; 2016.



Carry out a phased launch



Create a promotion and marketing campaign

Promotion and marketing are ways to bring awareness of the intervention to young people and the community and facilitate use of the intervention. These important yet often overlooked and underfunded activities will build the user base, increase parental and community awareness of the intervention and build brand recognition and trust.



Young people should be involved in determining the best ways to promote and market the intervention. They are the experts on how to appeal to their peer group. The campaign content itself should also be developed and tested with young people.

The landscape analysis can be critical to understanding the marketing environment and appropriate advertising channels, including how to promote the intervention within other health interventions. The campaign and its key messages should align with the tone, language and dissemination channels that are most appropriate for the target users. Delivery channels might include print, online social media platforms (such as Facebook or Instagram), mass media, mobile applications, in-person engagement, community-based partnerships for peer education, and street caravans or road shows.

It is important to continuously monitor, evaluate and iterate on the promotion and marketing efforts. This includes defining desired outcomes, identifying key metrics and creating a plan for tracking those metrics. Data should be collected on who the audience is, their level of engagement, how they heard about the intervention, and the cost of using all delivery channels used, both digital and nondigital.

The value of a trusted brand

The [Love Matters Arabic](#) (LMA) program was designed for young Egyptians, but within a few months of its launch the information was being viewed in several Arabic-speaking countries. Annual users now number 7 to 8 million, 27% from Egypt and more than 70% from other Arab countries, with Saudi Arabia, Algeria, Morocco and Iraq topping the list. LMA has become a trusted brand among young people from those countries, who know that it is a safe platform to use. In addition, LMA uses simplified Arabic for its messages and information, which can be understood by speakers of all Arabic dialects. LMA also uses simple, culturally relevant terms that can be understood by many people of similar cultures. Without any promotion and marketing efforts in those other countries, LMA has successfully disseminated information beyond Egypt, reaching an even larger group of users for whom the content is relevant.

Case study



Using metrics and data to evaluate the performance of marketing content

[Girl Effect](#) pilots marketing content and collects data on several metrics to determine effective marketing strategies for brands and platforms that reach young people with valuable information. For their [Big Sis](#) chatbot, which is available on Facebook, Girl Effect identified indicators to evaluate the online marketing content and strategies, such as the number of users reached, percentage of users who saw an ad and clicked on it, the percentage of users who took a desired action after seeing an ad on Google or Facebook (the conversion rate), and the percentage of users who completed a Big Sis module. Girl Effect measures the conversion rates for different online marketing tactics at each stage, from when users first see marketing content to when they engage with Big Sis, in what is known as the *conversion funnel*. At each step of the conversion funnel, Girl Effect calculates the marketing cost, along with the average conversion rate, which helps determine the effectiveness of each marketing tactic. The most effective tactics establish a benchmark for future marketing campaigns and the key performance indicators for that marketing tactic.

Case study



Create a promotion and marketing campaign



Implement ongoing **promotion and marketing activities** to facilitate continued user engagement with the platform. If promotion and marketing efforts stop, so does user engagement.

Align promotion timing and delivery channels with young people's **existing media use habits**, which can change and fluctuate.



A promotion campaign should include a **schedule of events and marketing opportunities**. Nationally and internationally recognized days such as International Day of the Girl or International Day of Youth, as well as local youth or community events, can serve as springboards for marketing efforts.



Do not underestimate **required resources** for ongoing promotion and marketing efforts, which should be accounted for in **work plans and budgets** at the beginning of the development process.

Ensure that funders understand the importance of a robust and long-term promotion and marketing strategy and that they agree with the budget and timeline for the activities.



Health professionals, developers and implementers may not have marketing expertise, so consider enlisting **promotion and marketing experts'** help to design and launch the campaign. Larger firms may offer services at a reduced cost for projects that serve the social good, especially if they are incentivized with personal advertising or rewarded for their efforts in other ways.



Seek out partnerships with existing organizations, individuals and interventions that target young people. It can be advantageous to **"bundle" the intervention** with brands that are trusted among young people and the community.



Consider using **paid advertising or promoted posts** on a variety of channels, such as radio, YouTube, Instagram or Facebook. These can be cost-effective and boost uptake.





Just as the intervention’s content should be tested with the intended users, promotion and marketing messages should be co-designed and tested with young people to ensure that those messages resonate. Table 2 provides guidance on developing campaign messages.

Table 2.

Creating promotion and marketing messages

DO	DON'T
<ul style="list-style-type: none"> ✓ Hire young people to write content in the local language to avoid translation errors and ensure the right tone. ✓ Ensure that all content is consistent with the key messages. ✓ Use a tone that conveys that messages are coming from a trusted, knowledgeable and friendly advisor. ✓ Make content consumable in shorter messages with brief text and no jargon. ✓ Use humor. ✓ Use bold, bright colors. ✓ Mention common concerns—young people tend to seek information in a crisis. ✓ Challenge users on what they think they know or on common myths (so they will click to check). ✓ Make content easily available and shareable. ✓ Update and refresh content frequently. ✓ Include young faces in marketing material. 	<ul style="list-style-type: none"> ✗ Use a tone that conveys that messages are coming from an authoritative adult. ✗ Include warnings or prohibitions on behaviours. ✗ Use memes, which evolve and quickly become outdated. ✗ Use images that look like stock images. ✗ Use slang. ✗ Use animations that look childish or “young.” ✗ Make content too dense or embarrassing.



Be cautious about using rewards or incentives to encourage young people to enroll in the intervention. These can be helpful on a small scale but can stray into coercion or bribery. It is never acceptable to offer financial incentives to use specific health services or products.

Do not use photos of young people under age 18 in marketing of SRH interventions. Do not use photos of young people above the age of 18 without their written consent and without showing them the specific way in which their photo will be used.



Tailoring promotion and marketing content for different channels

Girl Effect designed [Chhaa Jaa](#), an intervention that empowers adolescent girls in India with SRH-focused content. Chhaa Jaa focuses its promotion and marketing efforts on digital channels that young girls already use and are comfortable navigating, including Facebook, Instagram and YouTube. Rather than taking a similar approach across all social media platforms, Chhaa Jaa runs content tailored to typical user behaviour on that specific platform. It uses YouTube as the consumption platform, where the focus is on increasing views. It uses Facebook as a broadcast platform to expand reach and awareness. And it uses Instagram as an engagement platform to facilitate conversations, both private and public. Chhaa Jaa also uses Facebook and YouTube analytics to determine optimal times for content uploads and promotions (such as during lunch breaks or right after college classes get out).

Case study



Create a promotion and marketing campaign

Conduct monitoring and evaluation



Monitoring involves the ongoing, routine collection, review and analysis of data generated by digital systems or collected for the purpose of tracking progress toward achieving the intervention’s objectives (25). It can identify what is and is not working and enable implementers to adjust the intervention and metrics accordingly. Monitoring focuses on answering the question, “Is the intervention working as intended?” (25). Evaluation is the systematic and objective assessment of an ongoing or completed intervention with the aim of determining its impact on health outcomes, its efficiency and its sustainability (25, 47). Evaluation focuses on answering the question, “Is the intervention yielding the desired effect?” (25).

It is important to choose the appropriate M&E methods. Digital technologies provide new ways to collect data, enabling M&E approaches that are faster, easier and more cost-effective. M&E for digital health interventions regularly employs a mix of digital and nondigital approaches, however.

Important considerations when planning M&E methods include:

- Accounting for literacy levels and comprehension of the content
- Clearly explaining what information is being collected, for what purpose, how it is being collected and where it will go
- Ensuring that young people are not persuaded or pressured to respond to M&E questions in a particular way
- Ensuring that responses can be provided confidentially and kept private
- Aligning M&E activities with the intervention’s theory-driven approach (25)



Monitoring

Monitoring involves tracking processes, reviewing implementation milestones and making course corrections. A process of continuous quality improvement (CQI) can be fostered by including user-friendly dashboards and scorecards to benchmark progress and indicate where corrections are needed. It is important to define explicit mechanisms and procedures for collecting user feedback and for addressing implementation-related challenges (24). Monitoring should aim to understand the functionality, stability, fidelity and quality of the intervention. Table 3, which is adapted from WHO's *Monitoring and evaluating digital health interventions: a practical guide to conducting research and assessment*, summarizes these categories.

Table 3.

Monitoring categories

Category	Step	Guiding questions	Potential metrics
Functionality	Prototyping and phased launch	<i>Does the system operate as intended?</i>	<ul style="list-style-type: none"> → Message content → Message schedules → Message timing
Stability	Prototyping and phased launch	<i>Does the system consistently operate as intended?</i>	<ul style="list-style-type: none"> → Message failure rate → Network connectivity
Fidelity	Full implementation	<i>Do the realities of field implementation alter the functionality and stability of the system?</i>	<ul style="list-style-type: none"> → Functionality reports → Poor network connectivity → Power outages → User forgetting password
Quality	Phased launch and full implementation	<p><i>Are the content and delivery of the intervention of high enough quality to yield the intended outcomes?</i></p> <p><i>How well and how consistently is the intervention being delivered?</i></p>	<ul style="list-style-type: none"> → Correct user entry of phone number → Quality control reports on users → Feedback from users on content → Similar data patterns across users and geographic areas



Conduct monitoring and evaluation



Creating a model of continuous monitoring, assessment and improvement

UNFPA's global innovation portfolio has supported a number of adolescent-focused sexual and reproductive health digital solutions in low- and middle-income countries. UNFPA is drawing on these digital platforms as it designs other solutions and is taking a common approach to monitoring and assessment. To that end, it developed the mHealth for Adolescents and Youth Starter Pack, which includes a set of tools, resources and reusable software for country teams to efficiently design, deploy and sustain digital SRH solutions.

A key component of the Starter Pack is the Learning for Impact Toolkit, which enables programme managers to monitor and learn from their digital solution's implementation across categories of system performance, usage, engagement, health outputs and health outcomes, each linked to objective metrics.

The UNFPA Myanmar Country Office applied the Learning for Impact Toolkit in creating its Love, Question, Life Answer (LQLA) mobile app, which imparts life skills and delivers SRH information to young people who are both in and out of school. UNFPA Myanmar and its partners (youth-led networks and the Ministry of Health) aimed to better measure the app's usage and effectiveness in order to improve it. The team identified indicators to measure the user base, engagement and user needs and used methods such as Google Analytics, short surveys (in-app and on social media) and focus groups to quickly generate insights. Through this continuous monitoring and assessment approach, the team was able to take corrective action to improve the content, consider additional features and enhance the overall user experience.

Examples of metrics from the UNFPA Innovation Learning for Impact Toolkit

Category	Metric	Description	Potential corrective actions
Stability	System uptime	Percentage of time during a given period in which a system is operational	<i>Poor system uptime requires the original software development team to optimize server performance.</i>
Fidelity	Monthly active users	Number of users in a given month	<i>Consistently poor monthly active user numbers may indicate a need to improve system performance, increase promotion and marketing efforts, or improve engagement through upgrades.</i>
Quality	Net promoter score	User satisfaction with the intervention, as measured by user willingness to recommend it to others	<i>A low net promoter score indicates that users may not be satisfied with the intervention. This may prompt additional investigation into what users are unsatisfied with (such as features, stability or utility), which can then lead to targeted improvements.</i>
Immediate outcomes	Improvement of SRH knowledge	Percentage of women/men aged 15–24 who correctly identify ways to prevent the sexual transmission of HIV and reject major misconceptions about HIV transmission	<i>If the intervention is not increasing SRH knowledge, the education efforts may need more focus either outside or within the intervention.</i>
Mid-term outcomes	Uptake of SRH services	Number of adolescents / young people who have used integrated SRH services (disaggregated by service, age and sex)	<i>If the intervention has not improved service uptake, additional investigation is needed to discover the reasons why (such as health system constraints, difficult-to-use clinic finder or delays in accessing care).</i>



Evaluation

Evaluation activities generate evidence on the likely effects of the intervention and seek to determine valid associations between the intervention and a health outcome (25). There is no single best approach for evaluating a digital health intervention. The choice of study design and accompanying research methods should be based on the relevant research questions and objectives and the stage of maturity of the intervention (25, 48). However, overarching categories of evaluation include descriptive and exploratory (useful during the planning stage) as well as analytic, explanatory and predictive study types (more pertinent during the implementation stage) (25). Table 4, adapted from WHO's *Monitoring and evaluating digital health interventions: a practical guide to conducting research and assessment*, describes these categories.

Table 4.

Evaluation study types and methods

Study type	Description	Research question	Study designs
Descriptive	» Describes a population and its health conditions, characteristics and context	<i>What are the population characteristics and needs in this context?</i>	→ Case reports, case series → Surveillance → Cross-sectional surveys → Ecological studies
Exploratory	» Aims to gather preliminary information required to define problems and suggest hypotheses	<i>What hypotheses may explain the trends observed?</i>	→ Case reports, case series → Surveillance → Cross-sectional surveys → Ecological studies
Analytic	Adequacy » Compares the performance or impact of the intervention with previously established adequacy criteria (48) » Assesses how well intervention activities have met expected objectives (48)	<i>Did the expected changes occur?</i>	→ Observational studies
	Plausibility » Aims to determine whether the intervention caused the observed effect(s) » Includes a comparison group » More robust than adequacy evaluations	<i>Did the intervention have an effect?</i>	→ Quasi-experimental studies → Observational studies
	Probability » Aims to determine whether the intervention caused the observed effects while ensuring only a “small known probability that the difference between intervention and control areas were due to confounding, bias, or chance” (48) » Requires randomization of treatment and control activities	<i>Did the intervention have an effect above and beyond other external influences?</i>	→ Randomized controlled trials (RCTs) → Quasi-experimental studies
Explanatory	» Aims to determine how and why an intervention led to the measured health effects or outcomes	<i>How did the implementation of the intervention lead to the effects observed?</i>	→ RCTs → Quasi-experimental studies → Descriptive
Predictive	» Draws on primary and secondary data to make predictions about future events	<i>What is the likely effect of intervention activities on future events?</i>	→ Predictive → Secondary analysis



Conduct monitoring and evaluation



Make **M&E data** available to all members of the core team and cite the sources clearly so people can discuss their credibility and reliability. It is best to triangulate data from multiple sources.



Think of creative ways to make data collection more **appealing to young people** and possibly increase response rates—for example, by framing a questionnaire as a fun quiz and putting it in digital form rather than using a paper-based questionnaire.



When **interpreting findings** from M&E activities, take into account who was included as a participant, the size of the sample and how these factors affect generalizability.



Validated and standardized measures can be challenging to use because they are often not worded in a way that is comprehensible to young people with low to moderate literacy levels. However, it is good practice to measure responses consistently.



World Health Organization. **Digital implementation investment guide (DIIG): integrating digital interventions into health programmes. Chapter 8: monitor the implementation and use data effectively.** Geneva: WHO; 2020.



World Health Organization. **Monitoring and evaluating digital health interventions: a practical guide to conducting research and assessment.** Geneva: WHO; 2016.



Using M&E data to make adaptations at different implementation phases

In 2010, [FHI 360](#) developed the first iteration of [Mobile 4 Reproductive Health](#) (m4RH), an automated, on-demand SMS intervention that provides family planning and SRH information. The initial m4RH pilot evaluation was conducted to determine the feasibility of providing family planning information via SMS. Users were sent a four-question SMS survey to collect demographic information and understand the potential impact of the intervention on family planning use; adolescents were the main respondents. A series of telephone interviews and focus group discussions with adolescents suggested that using mobile phones to deliver a range of contraceptive information to adolescents might help overcome barriers limiting their use of contraceptives. These results triggered the adaptation of m4RH for adolescents by expanding platform content to include information on puberty, sex, pregnancy, health choices, gender-based violence and dual protection (use of condoms with another contraceptive method in order to prevent pregnancy and sexually transmitted infections).

Years later, a retrospective study of SMS responses automatically collected in Tanzania from September 2013 to August 2016 was conducted to better understand user engagement. To measure user interaction with m4RH, FHI 360 developed indicators to measure the number of new users, return users and repeat users. Each indicator was defined based on certain requirements relevant to m4RH, to ensure high-quality data. For example, repeat users were defined as the “number of unique users that accessed the system more than once per month (does not include users who accessed the same menu items twice during the same month).” This definition was tailored to exclude users who were repeatedly accessing the same menu items and not seeking out new information from the intervention. This data helped identify key user trends. For example, the churn indicator—the percentage of users who do not become active users—showed that more users were lost in the first step of the navigation menu (53.9%) than in the second step (10.42%), which suggested the need for a way to retain user engagement beyond first contact with m4RH.



Case study



Conduct monitoring and evaluation

Looking ahead

The field of youth-centred digital health has come a long way from the first generation of interventions. Maturity has brought with it an understanding that these interventions are not a silver bullet and that they should complement, rather than replace, existing, validated health interventions. Like any health intervention, they should also be developed using effective participatory processes throughout the planning, development and implementation stages.

The context in which young people access health care has also dramatically changed in the last decade. This includes:

- Global recognition of the immediate and long-term health, economic and social impacts of investing in young people's health (49)
- National and international commitments to ensure that all people can access health services when and where they need them, without incurring financial hardship (i.e., universal health coverage)
- Attention to empowering individuals as decision-makers in their own health care and enabling them, their families and their communities to promote and maintain health, prevent disease and cope with illness and disability with the support of health workers (also known as *self care*) (50)

For young people, digital health interventions can play an important role in expanding the reach of health information and existing services.

The digital health field will continue to mature along with the available technologies and as internet use and mobile phone access continue to expand to even the most remote communities around the world. Current trends include:

- The emergence of new standards, guidelines, classification systems and regulations based on Principles for Digital Development (51), to guide investments in digital health (52) and inform the actions of donors, developers and implementers.
- Increasingly sophisticated messaging platforms and social media applications as well as technologies such as AI and machine learning.
- Increasingly accessible and affordable ways for both organizations and individuals (including cultural influencers) to generate and curate appealing health content more. Increasingly, young people are designing digital content and interventions for their peers and taking the lead in innovation.

This excitement and expanded reach provide ample opportunities to deliver health messages in innovative ways that empower young people to make informed choices about their own health and well-being (50). The lessons captured in this document will allow developers and implementers of the new generation of digital health interventions to build on the experiences of the first generation of digital health interventions.



Considerations for funders

The pace, timeline and scope of digital health interventions are often determined by available funding and the priorities of funding entities. This annex provides a funder's perspective on important lessons related to supporting the development and implementation of youth-centred digital health interventions.

In the first era of these interventions, resources were funneled toward standalone interventions based on enthusiasm for using digital means to transform the delivery of health messages to adolescent and youth end users. More recently, a new generation of digital technologies that appeal to young people (including chatbots and new messaging platforms) and the presence and reach of digital "influencers" have bolstered enthusiasm for developing digital health interventions or incorporating digital components into broader health interventions.

The next generation of interventions requires smarter, more meaningful investment. The donor community is already shifting to more intentional, systematic and methodical support of digital health interventions that avoid issues from the first generation, such as fragmented approaches and a lack of robust evaluation.

Key lessons learned by funders include:


- **Engaging young people is crucial at all stages of the development and implementation process.** This involvement should take place in a methodical way and go beyond tokenistic engagement. When involving young people, it is important to protect their safety and abide by ethical principles and legal regulations.
- **Developers should demonstrate a clear understanding of the implementing environment.** The implementing environment includes the digital health interventions that already exist and the gaps that a new digital health intervention might fill. Developers should ensure that a digital intervention is the best approach for the implementing environment and for achieving overarching health goals.
- **Funders should avoid vertical interventions with bespoke digital platforms.** Using existing technology in new ways or for different purposes may be a better approach than developing an entirely new digital platform. Digital health interventions should also integrate with current digital and nondigital systems that have similar goals.
- **Partnerships are important for the quality, sustainability and dissemination of the intervention.** Most health implementers are not software developers, nor are they marketing experts. Health implementers should recognize the limitations of their expertise and enlist partners for tasks such as developing or managing digital applications and creating promotional campaigns and marketing materials. The role of each partner should be based on their expertise or affiliation with organizations or certain groups. Funders should support these strategic partnerships.
- **Development processes should be flexible.** These processes should not be based on fully fleshed-out or prescriptive ideas of what the intervention will be. Developers should use data and information to inform the decision-making process, and developers and funders should be open to course corrections and changes in direction to achieve the optimal result.
- **Development should happen in iterative cycles.** Both the content and delivery of the intervention should be prototyped, tested with users and refined based on user feedback at every iteration of development.
- **Effective promotion and marketing are crucial for the success of the intervention.** These efforts will ensure that the intervention is reaching the intended audience of young people. They require time, expertise, testing and resources.





Funders need to recognize which proposals are grounded in a strong understanding of the local context and incorporate the best practices described in this document. They should allow for flexible and responsive funding mechanisms and provide strong oversight and involvement in intervention development. Finally, funders should encourage grantees to think about the project beyond the grant period and consider the sustainability of the intervention.


When selecting potential grantees, funders should consider the following questions:


- Who is on the leadership team or board of advisors of the organization?
- Who is managing the project?
- What other funders are supporting the project?
- How does the proposal align with the potential grantee’s organizational mission?


 Consider a **tiered financing model**, which uses cycles of funding for progressive development and implementation stages, each with **clear milestones**. This allows for more flexibility if the intervention needs to take a different route than originally planned.


Be flexible about **shifts along the timeline** and data-driven adjustments to the format of the intervention. Developing digital health interventions for young people is an **iterative process**, and the funding should allow for agility. Just as developers and implementers need to be flexible, so do funders. 

 Encourage grantees to **be methodical** and not rush into creating digital health interventions. Look for a thoughtful and detailed understanding of the digital and nondigital landscape as well as the needs of the population.

 **Funders and grantees should communicate** with one another throughout the development and implementation process, especially when issues arise or changes in direction are needed.

Site visits are helpful for interacting with grantees in person and understanding what is happening on the ground during the development and implementation stages. 

Talk to other funders of digital health interventions to understand what products and tools are being developed. 

 Consider establishing a **youth advisory board** or youth council to advise on projects. Young people should be meaningfully involved at every stage of the process, including on the funding side.

Tips



Seeking partnerships with existing technology platforms

Merck for Mothers focuses on financing partnerships that build on existing technology platforms. For example, it supports Nivi, an innovative technology platform that is engineered to be adaptable and integrates easily with various partners to optimize their marketing, health education and service uptake efforts. By encouraging this type of collaboration, Merck for Mothers enables its grantees and partners to refine and improve existing digital technologies and avoid contributing to fragmentation in the field by creating bespoke digital technology platforms that cannot interoperate with other tools.



Case study



Measuring the success of a digital health intervention can be challenging. Many first-generation digital health interventions focused on outputs (such as the number of visitors, likes or tweets) rather than outcomes (such as health education knowledge, attitudes or behavioral intent). Moving forward, digital health proposals and interventions should also incorporate measures to evaluate the effect on health outcomes.

Historically, the development and implementation of digital health interventions have been driven by funder priorities or objectives. The design and development of the next generation of interventions should take a human-centred approach that focuses on the needs of the population the intervention is intended to serve.

Resources



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Global Innovation Fund [internet]. **Stages of funding.** Available from: <https://www.globalinnovation.fund/what-we-do/stages-of-funding/>



International Development Innovation Alliance. **Scaling innovation: good practice guides for funders.** IDIA; 2017. Available from: <https://static1.squarespace.com/static/5b156e3bf2e6b10bb0788609/t/5b17185af950b797a96de027/1528240221838/Scaling+Innovation+Good+Practice+Guide.pdf>



Young people's perspectives on youth engagement

During [Switched On](#), an international symposium exploring the potential of delivering sexuality education through digital spaces, 32 young people—social media influencers, health content and intervention developers, health advocates and educators, and current or future health professionals—were asked to describe the do's and don'ts of working with young people in planning, developing and implementing youth-centred digital health interventions, based on their own experiences. Table 5 summarizes their responses.

Table 5.

Guidance on engaging young people in the intervention design process

DO	DON'T
✓ Respect and value the perspectives and skills of young people.	✗ Hire someone as “the young person” on the team in order to fill a quota.
✓ Pay young people for their work and contributions to the development and implementation of the intervention.	✗ Use the skills and expertise of young people for free.
✓ Work with youth-led networks to represent a diverse group of young people and get as many perspectives from young people as possible.	✗ Work with only one young person or the same young people. Young people are not a homogeneous group.
✓ Account for young people's lived realities and identities when involving them in the process.	✗ Invite one young person to speak on behalf of different kinds of young people.
✓ Implement mechanisms to safeguard young people's interests and identities.	✗ Manipulate young people to respond in certain ways to meet personal or organizational needs and goals.
✓ Trust young people. Developers of interventions may not always understand what works for young people, which is why young people are the best group to consult.	✗ Underestimate the experiences of young people.
✓ Engage young people from the beginning of the process and at every step along the way, including having several consultations.	✗ Engage young people only at the end of the process or only at one stage of the process.
✓ Create opportunities for young people to build capacity, gain experience, acquire skills and gain upward mobility. Their role should evolve from beneficiaries to partners to leaders.	✗ Treat young people as problems to solve.
✓ Create a safe, youth-friendly space for young people to participate.	✗ Ignore answers or input from young people because they are unwelcome to developers and implementers of the intervention.
✓ Recognize privilege, power and social context when working with young people. Understand how to share power and decision-making during the process.	✗ Assume things about young people without talking to young people.



Expanding the role and influence of young people

Fondation Botnar, as part of a global coalition called UHC2030, worked with three coalition partners—Partnership for Maternal, Newborn & Child Health (PMNCH), PATH and Women Deliver—to establish a youth advisory council for UHC2030. The 12-member council, known as Young Experts: Tech 4 Health (YE:T4H), advises the coalition and provides input and guidance to help shape the agenda for achieving universal health coverage globally by 2030 through the use of data and digital technologies. In this role, the council designs independent initiatives and campaigns, builds networks of young people, generates opportunities for other young people to be involved, and co-leads and participates in UHC2030's core working groups.

Case study



Content case study:

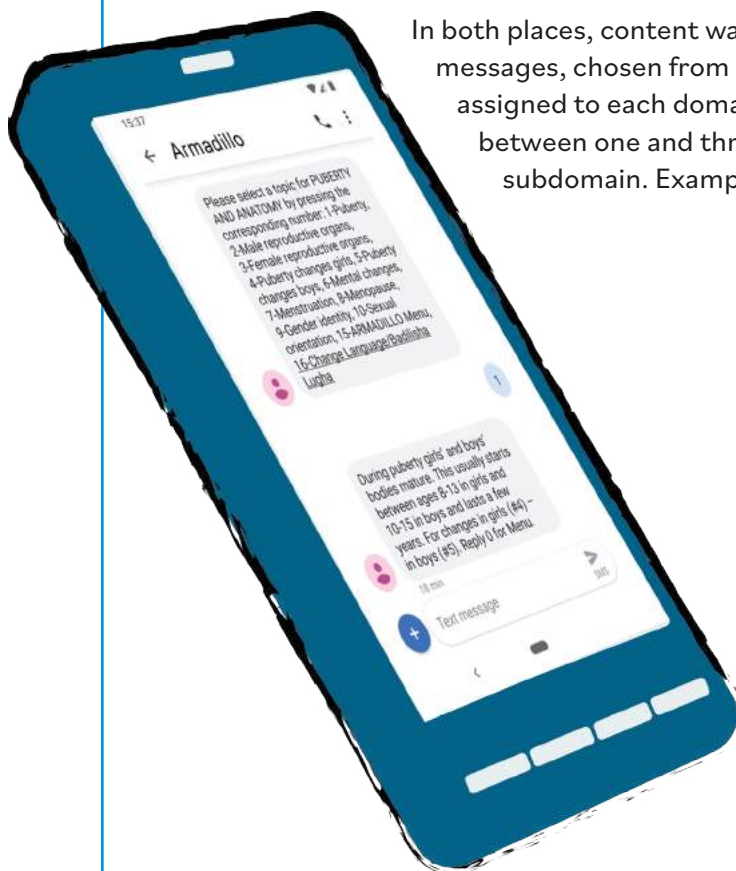
ARMADILLO in Peru and Kenya

This annex shows how health information content can be delivered differently based on the preferences of users in different communities.

The Adolescent/Youth Reproductive Mobile Access and Delivery Initiative for Love and Life Outcomes (ARMADILLO) Study was a two-stage study designed to assess the effects of providing young people with SRH content through their mobile phones. The study ran from 2015 to 2018 and was coordinated by WHO and led by research partners in Peru (Universidad Peruana Cayetano Heredia) and Kenya (International Centre for Reproductive Health-Kenya). ARMADILLO's two stages consisted of 1) a formative phase to develop SRH content for delivery via text message; and 2) a randomized controlled trial to assess the effects of this intervention on young people's sexual and reproductive health knowledge and retention.

Content in Peru was targeted at adolescents aged 13–17 (but designed with young people aged 13–24); content in Kenya was targeted at young people aged 18–24 (but designed with young people aged 15–24). Both versions were developed with the input of young people as well as local and national adolescent health stakeholders. Adolescent health stakeholders in both Peru and Kenya were keen to promote pregnancy and HIV prevention messages, while young people in both places expressed strong preferences for information on broader “love and life” concepts, including relationships (with romantic partners, friends, and/or family) and sex. The information covered was ultimately similar, but it was adapted to each audience. The messages were written in a conversational tone and offered a combination of facts and empowering statements.

In both places, content was delivered via text message using on-demand (pull) messages, chosen from a menu of different domain areas. By selecting numbers assigned to each domain and subdomain, users could choose to receive between one and three text messages with content from a particular subdomain. Examples are shown on the next two pages.



Peru	Kenya
<p><i>Domain: How can I have fun?</i> <i>Subdomain: On your own</i></p> <p>Masturbation is when a woman or man explores and touches their own body and feels pleasure. It is normal and safe for everyone.</p>	<p><i>Domain: Sex</i> <i>Subdomain: Masturbation</i></p> <p>Masturbation (kujipuli)—touching yourself to feel sexual pleasure; no risk of pregnancy or sexually transmitted infections. Can be done alone or with a partner (mutual). Normal for boys and girls.</p>
<p><i>Domain: What should I protect myself from?</i> <i>Subdomain: HIV</i></p> <p>HIV is transmitted through vaginal, anal and oral sex without a condom; by sharing needles; during pregnancy, delivery and breastfeeding.</p>	<p><i>Domain: HIV</i> <i>Subdomain: Transmission</i></p> <p>A person living with HIV can give it to another person through body fluids exchanged during needle sharing, unprotected sex, pregnancy, childbirth or breastfeeding. It cannot be transmitted through bed bugs, mosquitos and fleas. Sharing a meal, being friends or hugging a person with HIV will not give you HIV.</p>
<p><i>Domain: What no one talks about</i> <i>Subdomain: Violence</i></p> <p>Violence can be physical (hitting) and/or psychological (humiliation, insults, threats, jealousy, etc.). Let's value ourselves! DON'T ALLOW IT!</p>	<p><i>Domain: GBV</i> <i>Subdomain: Gender-based violence</i></p> <p>Gender-based violence (GBV) is any deliberate harm, or threat of harm, directed to a person because of his or her gender. Violence can be sexual, physical or psychological. It can happen anywhere, such as home, school or work. No matter the relationship (family, romantic, friend, boss), GBV is never acceptable.</p>
<p><i>Domain: Who can take care of me?</i> <i>Subdomain: Healthy relationships</i></p> <p>A healthy relationship is one that makes you happy, where there is mutual appreciation, faithfulness, respect and good communication.</p>	<p><i>Domain: GBV</i> <i>Subdomain: Healthy relationships</i></p> <p>A healthy relationship requires mutual appreciation, respect and communication. Here are some signs of an unhealthy relationship: physical or verbal threats; possessive or controlling behaviour; criticism; anger or violence; verbal abuse; manipulation.</p>
<p><i>Domain: Who can take care of me?</i> <i>Subdomain: Healthy relationships</i></p> <p>An UNHEALTHY relationship is when there is physical, verbal or sexual violence, manipulation or anger by a partner. AVOID IT!</p>	



<p><i>Domain: How can I protect myself?</i> <i>Subdomain: Pill and injectable</i></p> <p>The contraceptive pill is taken every day at the same time even if you don't have sex that day. It is NOT the morning-after pill.</p>	<p><i>Domain: Pregnancy prevention</i> <i>Subdomain: OC</i></p> <p>Oral contraceptives (OCs), or “tembe,” are hormonally active pills taken by mouth at the same time daily. Women who use the pill may have shorter and lighter periods—this is normal. Available in pharmacies, clinics / public health facilities.</p>
<p><i>Domain: How can I protect myself?</i> <i>Subdomain: Pill and injectable</i></p> <p>Contraceptive injections last 1 or 3 months. They can be applied at the health establishment, even for adolescents. Go and ask for help!</p>	<p><i>Domain: Pregnancy prevention</i> <i>Subdomain: Injections</i></p> <p>Given in the arm, releases hormone slowly into the blood. Effective for 1-3 months—know which one you get and when to return for your next injection. May cause irregular periods—it's normal. Doesn't cause infertility. Available in pharmacies, clinics / public health facilities.</p>



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