



USAID
FROM THE AMERICAN PEOPLE

A VISION FOR ACTION IN DIGITAL HEALTH

2020-2024

Accelerating the
Journey to Self-Reliance
Through Strategic
Investments in
Digital Technologies



*Photos on front cover, (clockwise from top left): Daljit Singh, USAID; Riaz Jahanpour for USAID Tanzania/
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MESSAGE FROM THE ADMINISTRATOR



Meeting the health challenges of the 21st Century requires harnessing the full potential of technological transformation to overcome old scourges and newer threats to public health alike. In countries where the U.S. Agency for International Development (USAID) works, digital technologies—such as mobile phones, Internet-based services, and digital data systems—increasingly are critical components of this transformation.

Building on the [USAID Policy Framework](#) and the [USAID Digital Strategy](#), this *Vision for Action in Digital Health* charts a course to better health outcomes through strategic investments in digital technologies. It puts governments, civil society, and the private sector in our partner countries at the center of decision-making and supports the creation of long-lasting and sustainable systems. Our ultimate goal is healthy people, communities, and societies that, in turn, underpin the healthy economies and resilient democracies necessary to advance the *Journey to Self-Reliance*, especially in a world affected by COVID-19.

Digital tools are providing access to microfinance, monitoring elections, and even boosting the production of crops. It is no surprise, then, that these tools are also revolutionizing the delivery of health care.

When applied to health, new technologies can improve disease-surveillance, extend and expand the delivery of care, support remote health workers, and empower people to be informed custodians of their own health and wellness. USAID has a critical role to play in shaping this journey forward, and we will integrate the smart use of digital technologies into all of our health programs.

John Barsa
Acting Administrator



FOREWORD



The U.S. Agency for International Development (USAID) has been an early and sustained pioneer in applying digital interventions to track important health conditions and activities to inform and improve the programs we fund. Data from these efforts have allowed USAID to achieve high-impact health outcomes. Now we must lead in the modernization of digital investments in health care and public health.

Globally, funders must align their investments in digital-health technologies better in low- and middle-income countries. Such increased coordination will strengthen national digital systems and environments further, and improve the availability, timeliness, and quality of data for decision-making at all levels of health care.

To meet today's global health challenges, we need detailed and sophisticated data for health providers and policy-makers to analyze and use. For example, we need longitudinal tracking of patients, full visibility into supply chains, and a comprehensive view of vaccine-coverage rates. We rely increasingly on digital technologies to gain access to, assess, and use these data, as well as to strengthen health institutions in our partner countries, and to extend the reach of healthcare delivery.

Funders, including USAID, must move away from the legacy practice of investing in digital technologies by siloed disease or health-promotion areas. We must collectively move toward a shared approach to supporting and funding common, national plans, and interoperable digital systems. This is critical to enabling our investments to be strategic, sustainable, and capable of broadly leveraging financial and human resources to meet public and global health needs.

This first-ever USAID *Vision for Action in Digital Health* will strengthen our ability to care for the whole patient—by preventing and treating diseases while promoting health and wellness—through the support of strategic, durable, and extendable digital solutions. By shifting USAID's investments to align to, and strengthen, national digital-health plans, technologies, and capacities, we will accelerate the strategic digital transformation of health care in our partner countries.

This *Vision* marks the beginning of a journey; to reach our goals, we must implement the *Vision* fully, from principle to practice. This will include the creation and implementation of supporting technical guidance, such as the "Introduction to Digital Health" course now available in USAID University, and the assessment and building of relevant skills sets and capacity among USAID staff. Where needed, we will update or draft new enabling Agency policies and processes.

I welcome you to this exciting new chapter in USAID's embrace of digital technologies to modernize our development efforts, part of an Agency-wide effort following the launch of our [Digital Strategy: 2020-2024](#). Together, this body of work will be critical to help us make efficient use of American taxpayers' investments and strengthen the *Journey to Self-Reliance* in our partner countries.

Alma Golden, M.D.
Assistant Administrator
Bureau for Global Health



ACKNOWLEDGEMENTS

The *USAID Vision for Action in Digital Health* is the result of significant contributions from across USAID offices in Washington and around the world, and our partner community. The *Digital-Health Vision* would not have been possible without the dedicated leadership and support of USAID Chief of Staff Dr. William Steiger, Global Health Bureau Assistant Administrator Dr. Alma Golden, and former Global Health Bureau Front Office Senior Advisor, David Stanton. The *Vision* was drafted by Adele Waugaman with Merrick Schaefer, inspired by the work of USAID country-based staff including Teddy Berihun and Keith Hummel, and benefited from technical inputs and review by USAID’s internal Digital Health Working Group—over 60 individuals from multiple offices and bureaus who lent their perspectives and experience to help shape this document. In particular, members of the Strategy Small Working Group—Anwer Aqil, Jacob Buehler, Jaclyn Carlsen, Krissy Celantano, Katy Handley, Ishrat Husain, Amani M’Bale, Lungi Okoko, and Bill Weiss—provided multiple rounds of close review. The *Vision* also benefited from close coordination with the Bureau of Policy, Planning, and Learning with thanks to Irena Sargsyan, as well as the Global Development Lab team implementing the USAID Digital Strategy, including: Aubra Anthony, Christopher Burns, Craig Jolley, John O’Bryan, Michelle Parker, and Amy Paul. Finally, this *Vision* benefitted from the engagement of Chris Thomas and Inuki Pantin, and builds off of earlier foundational work put in place by former Global Health Bureau Assistant Administrator Ariel Pablos-Mendez, Deputy Assistant Administrator Katie Taylor, Peggy D’Adamo, and Adam Slote.



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EXECUTIVE SUMMARY



Photo: Ncamsile Maseko & Lindani Sifundza

This *Vision for Action in Digital Health* charts a course to sharpen the investments of the U.S. Agency for International Development (USAID) in health-sector digital technologies and the data they enable in our partner countries. This policy guidance for USAID's staff will advance a new generation of strategic digital-health investments. It identifies four priorities for USAID's planning, procurement, and delivery of activities in global health.

Digitization unlocks increased access to health data, the use of which can inform more precisely targeted and adaptive¹ decision-making at all levels of health care. The pandemic of

COVID-19 underscores the critical need to use digital tools and data together. The response to COVID-19 requires detailed, often granular-level understanding of the disease, its spread, and its immediate and second-order impacts, as well as situational awareness of what resources are available and where they are located within a country, to enable their effective deployment. Digital technologies are essential to generating and analyzing data to inform the preparation for, and response to, infectious diseases in a timely manner. These efforts include the effective allocation of personnel, financial resources, and logistics and supplies necessary to direct a pandemic response and maintain access to critical health care.

WHAT IS DIGITAL HEALTH?

Digital health is the systematic application of information and communications technologies, computer science, and data to support informed decision-making by individuals, the health workforce, and health institutions, to strengthen resilience to disease and improve health and wellness for all.²

The *Classification of Digital-Health Interventions*³ published by the World Health Organization (WHO) identifies over 80 digital technology use-cases for strengthening health institutions and systems, and groups them by primary target user-groups, which include the following:

- **Client-oriented technologies**, such as those that provide compliance reminders for appointment and treatment, transmit health-event alerts, and/or transmit payments or vouchers;
- **Provider-oriented technologies**, such as those that support the identification and registration of clients; clients' health records; communications and decision-making for healthcare providers; referrals; planning and scheduling; training; and the management of laboratory tests and results, diagnostics, and imaging, and “virtual health,” including remote monitoring and telemedicine;
- **Manager-oriented technologies**, such as those that support the management of human resources, supply-chains, notifications of public health events, civil registries and vital statistics, public- and private-sector health funds, and facilities; and
- **Data-services-oriented technologies**, such as those that enable the collection, management, analytics, coding, exchange, interoperability, and use of data; and location-mapping.

As described in the draft WHO *2020–2024 Global Strategy on Digital Health*⁴, the term “digital health” refers to “the field of knowledge and practice associated with any aspect of adopting digital technologies to improve health,” and incorporates the subdomains of eHealth, medical informatics, health informatics, telemedicine, telehealth and mHealth, as well as data-analytics, big data, and artificial intelligence. USAID understands digital health to be relevant to all aspects of strengthening health institutions, including health-management information systems, and to encompass the use of digital financial services, including banking, insurance, and payment services accessed through mobile phones, electronic cards, and vouchers.⁵

THE IMPACT OF COVID-19 ON GLOBAL HEALTH

As the onset⁶ of the global COVID-19 pandemic illustrated, strong, supported health institutions are critical to the routine delivery of health care and resilience in the face of exogenous shocks. Outbreaks like COVID-19 expose the vulnerabilities of health care and public health. Where case management, contact tracing, or the prevention and control of infections in health facilities falter, outbreaks flourish. And where infectious diseases rage out of control, they can claim lives, destabilize economies and societies, lead to or escalate conflict and fragility, and cost billions of dollars in direct and indirect response and recovery efforts.

Health institutions that undergo digital transformation⁷ might fare better in exhibiting resilience to disease outbreaks, but only when they have undertaken that digitalization in a coordinated way. This coordination must include consideration for enterprise-level digital-systems planning, as well as the use of data and information that are critical to making informed decisions about programmatic effectiveness, the allocation or reallocation of resources, and to respond to unexpected events.

Even when they use data and adaptive management, health institutions that rely heavily on paper struggle to gather, share, and analyze data on outbreaks and operational responses at the speed required to keep pace with the spread of disease. Similarly, health institutions that rely on siloed digital systems that lack interoperability—or the ability to rapidly exchange and compare data—often struggle to gather and maintain the situational awareness required to effectively respond to a sudden disease outbreak. This speaks to the critical importance of planning for, and investing in, digital-health technologies and their broader enabling environments in a manner that supports health goals in USAID’s partner countries.

The COVID-19 pandemic has introduced considerable uncertainties, including whether the direct and second-order impacts of the disease will roll back progress in global health and development. It has also demonstrated the potential and pitfalls of the use of digital technology in the health context. On the one hand, artificial-intelligence systems were among the first⁸ to detect the COVID-19 outbreak, and the use of telemedicine has grown dramatically around the globe to address health needs in the context of quarantines and other efforts to maintain a physical distance that limits the disease’s spread.

Digital technologies are inherently value-neutral, but susceptible to manipulation. Yet the same connections enabled by digital technologies also have created opportunities for malign actors to sow and amplify misinformation and disinformation about the disease, its causes, and effective ways to contain its spread. Robust policy and regulatory environments, strong health institutions, and health workforces skilled in the use of digital systems and data relevant to their domain areas, are essential to protecting against and mitigating the unintended or malign uses of digital technologies in the health context. The structured guidance provided in this *Vision* can strengthen the digitalization of country-level health sectors, which is critical to supporting the *Journey to Self-Reliance*.



The full potential of digital technologies, data analytics, and the use of data can bolster preparedness for, and response to, pandemics, and accelerate efforts to reach global health goals.

Over the past decade, donors have made fragmented, program-specific investments in information technologies in low- and middle-income countries (LMICs). Fragmented digital systems store data in silos, which makes it difficult to access, integrate, and analyze information for decision-making. Moving forward, USAID must align our digital-health investments to support the development and implementation of national digital-health strategies. In turn, these national digital-health strategies should respond to country-level health goals and objectives, led and managed at the country level, and rely on digital infrastructure that host governments and their local partners can operate and sustain over time.

To enable a systems-level approach to digitalizing country-level health sectors, digital investments in individual diseases and health-promotion areas must coordinate and, wherever possible, align to national digital-health strategies grounded in national health institutions and plans. Investments in such specific

digital systems also should account for supporting the collection, capture, interoperability, and use of data that are critical to national health objectives. Where relevant, coordination with sub-national and supra-national planning also might be necessary.

Alignment of global health funding streams to national plans is also necessary to enable a well-supported enabling environment. A strong enabling environment is critical to ensuring governments and their partners are sufficiently skilled and supported to plan for, manage, and use digital systems and the data they generate to meet evolving health-sector challenges and reach national and global health goals. This is a critical component of the *Journey to Self-Reliance* in the health sector in a digital age. For USAID, this requires us to make our investments in individual priority areas in global health⁹—such as combating infectious diseases, including malaria, neglected tropical diseases and tuberculosis; controlling the HIV/AIDS epidemic; preventing maternal and child deaths; and supporting voluntary family planning and reproductive health—in a coordinated manner, in alignment with national and, where relevant, sub-national or supra-national¹⁰ digital-health plans and health goals.

USAID'S VISION FOR ACTION IN DIGITAL HEALTH AT-A-GLANCE

USAID envisions a world in which people have safe and secure access to the information and services they need to live healthy and prosperous lives. To reach this goal in an increasingly interconnected 21st-Century society, this inaugural *USAID Vision for Action in Digital Health* outlines four strategic priorities to which USAID will align¹¹ our investments in global health, consistent with the *Agency's Digital Strategy*¹² and the *Journey to Self-Reliance*.¹³

1 COUNTRY-LEVEL CAPACITY IN DIGITAL HEALTH

Investments in country-level⁴ capacity in digital health—including in leadership and governance, and institutional and workforce capacity—are essential to enabling investments in digital tools and systems to succeed.

2 NATIONAL DIGITAL-HEALTH STRATEGIES

Strong national digital-health strategies and costed implementation plans provide an organizing policy and budgeting framework that help align funders' investments to country-identified health priorities and plans.

3 NATIONAL DIGITAL-HEALTH ARCHITECTURES

National digital-health architectures provide a blueprint, including through the use of standards, to identify country-specific technology requirements, that can prioritize interoperability between national digital-health systems, and streamline future investments. National digital-health architectures can lower the financial and management burden of competing digital systems; strengthen national health institutions and the provision of health care overall; and promote the effectiveness, reach, and cost-efficiencies of digital investments.

4 GLOBAL GOODS

“Global goods” include content (knowledge products) and software tools, which frequently are open-source¹⁵, adaptable, and reusable to meet the diverging needs of various geographic or thematic contexts. Global goods can include reference guides; reusable digital components, such as identification or messaging systems deployable across sectors; as well as software tools specific to the health sector. The use of global goods can support the scaling of tested tools built to meet common use-environments in LMICs. USAID's *Vision for Action in Digital Health* calls for all of the Agency's staff to take dedicated steps to ensure our related investments align with, and provide support to, these priority areas. The *Vision* is the product of numerous consultations with USAID's staff at headquarters and in the field. It follows the *USAID Digital Strategy: 2020-2024*¹⁶ and interprets that guidance in the context of the needs of the global health sector, builds from established best practices—such as the *USAID-endorsed Principles for Digital Development*¹⁷ and *Principles of Donor Alignment for Digital Health*¹⁸—and aligns with key concepts in the resolution on digital health adopted by the World Health Assembly (WHA) in May 2018¹⁹ and the inaugural WHO *Digital Health Strategy*²⁰.

USAID recognizes that cyber security, data privacy, and trust are critical to the effective functioning of health institutions. USAID is ready to mitigate the potential harms of digital technology, from enhancing the security of personal identity information as digital-health systems become increasingly linked and interoperable with other systems, to countering the influence of actors who seek to use digital-technology assets and infrastructure for malign purposes, managing misinformation and disinformation during the response to pandemics, and promoting our implementing partners' use of secure and reliable digital technologies.²¹ The Chapter 500 policy series of USAID's Automated Directives System (ADS)²² provides Agency-specific directives regarding investing in, and managing, digital technologies and cyber security, protecting privacy

information, and adequately safeguarding data. The *USAID Digital Strategy: 2020-2024* provides guidance on risk-mitigation factors—such as the need to resist malign influences and practices, prevent the misuse of health and genetic data by authoritarian regimes, and contain corruption in securing contracts and purchasing digital technology. *Using Data Responsibly at USAID*²³ provides USAID's staff and implementing partners with a framework for identifying and understanding risks associated with digitized development data.

USAID will follow this *Vision* with a range of activities detailed in the "Looking Forward" section. These activities will include the dissemination of technical guidance that builds the capacity of USAID's staff to put into practice the four priorities in this *Vision*.



INTRODUCTION

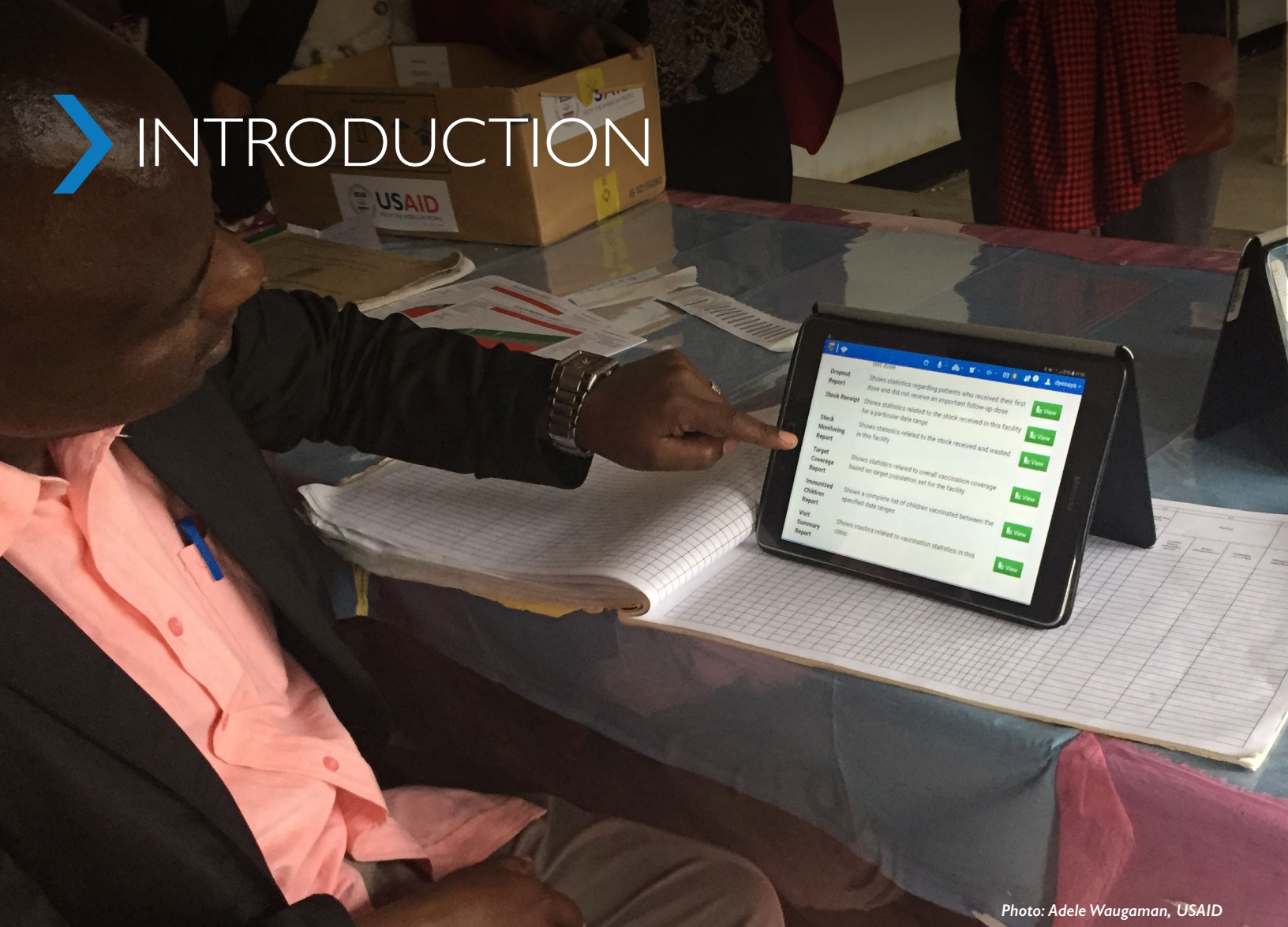


Photo: Adele Waugaman, USAID

A growing body of evidence, such as that documented in the *WHO Guideline: Recommendations on Digital Interventions for Health Systems Strengthening*²⁴, validates that the strategic use of digital technologies and the data they enable can improve health outcomes, increase the quality and accessibility of care, address the needs of clients and health workers, reach vulnerable populations, address gender disparities, and improve health equity. This *Vision* guides USAID's staff in the use of digital technologies and the data they enable as part of the Agency's investments in global health. It identifies four strategic priorities whose implementation can benefit all health programs by strengthening underlying digital-health systems and their use

environments, thereby enhancing the Journey to Self-Reliance.

The increasing digitalization²⁵ of health care and institutions in LMICs requires an updated investment approach. USAID must shift away from siloed, program-specific funding of information-technology systems, and toward co-investing in foundational, country-managed and -owned digital infrastructure that supports national health goals. Empowering the digital transformation, or digitalization, in our partner countries also will require funding for non-digital components. Significant investments in people, processes, and policies, as well as the associated change-management, are

needed to enable digital technologies and the use of data to meet global health goals. Many of the foundational digital business services and processes that are relevant for the health sector (e.g., identity, financial services, logistics-management, and messaging) are applicable across other sectors (e.g., agriculture and education), and vice versa. Investments in these foundational digital systems and their use environments can have widespread transformational value in USAID's partner countries, and are fundamental to the creation of inclusive digital economies.

This document is written first and foremost for USAID's staff²⁶—whether at headquarters or in the field, and whether in the Bureau for Global Health (GH) or in other parts of the Agency. It is designed to give them the following:

- **An interpretation of key priorities for action from the perspective of the health sector**, in line with USAID's [Digital Strategy](#) and the [Journey to Self-Reliance](#);
- **Awareness of the four strategic priorities** for health-sector investments in digital technologies that USAID will implement upon the launch of this vision;
- **The ability to link and use these strategic priorities** to inform USAID's programming and facilitate the [Journey to Self-Reliance](#) in our partner countries;
- **A shared familiarity with key digital-health terminology** and concepts; and
- **Resources and reference tools** to support the implementation of this *Vision*.

This *Vision* provides a new way to frame USAID's ongoing and future investments. It calls for all USAID staff—including those involved in creating Country and Regional Development Cooperation Strategies (CDCSs) and planning under the Agency's Program Cycle, as well as procurement officers, Agreement Officer's Representatives/ Contracting Officer's Representatives (AORs/ CORs), Activity Managers, and others—to ensure related investments align with, and provide support to, these priority areas and maximize positive impact through programs that sustain results.

Finally, while this *Vision* will guide USAID's investments in digital technologies that support the health sector, many aspects of it are relevant to the other development sectors the Agency funds. Likewise, USAID's digital activities in health can align with those managed by other development and humanitarian colleagues who seek to leverage and advance common, reusable digital building blocks. This multi-sectoral alignment in digital investments can enable governments, civil society, and the private sector in USAID's partner countries to meet their populations' needs more seamlessly and sustainably.

Parameters of the *USAID Vision for Action in Digital Health*

This *Vision* focuses on digital technologies that receive Program funding from USAID, deployed in countries to support health activities, regardless of whether governments, the private sector, or civil-society partners manage them. As stated in the definition provided above, the term “digital health” refers to the planning for, study, and use of digital systems and the data they generate to strengthen health institutions and outcomes through improved health information and delivery of care.

This *Vision* is not relevant to the following:

- **General office use of information and communication technology (ICT)** (e.g., funding for desktop computers in the offices of a Ministry of Health or non-governmental implementer);
- **USAID-managed digital systems**, or investments therein, designed to meet the data needs of the U.S. Government, or to any software deployed behind USAID’s firewall (e.g., the Global Acquisition and Assistance System [GLAAS], internal systems for monitoring and



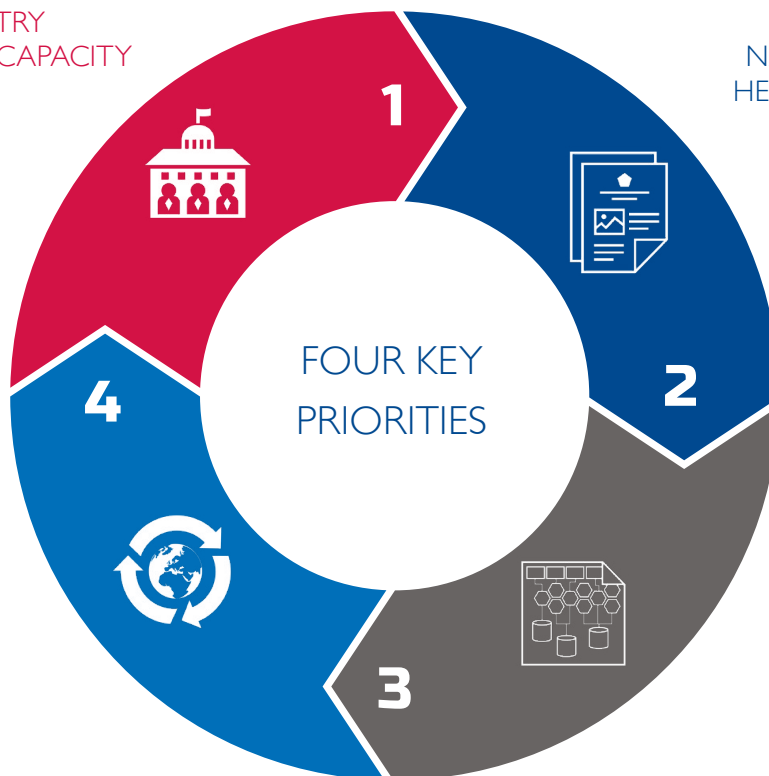
evaluation or analyzing data, or the Agency's financial-tracking system);

- **The use of digital tools by USAID's programs and partners to support their external communications (e.g., websites) or internal data needs, (e.g., the use of a mobile data tool to collect project-level data for monitoring and evaluation), unless such tools connect to and support country-levels data systems; or**

- **Digital tools deployed solely for research or innovation purposes (e.g., a custom application to test a digital intervention, or a digital tool necessary for collecting data for a study), or for small-scale, exploratory pilots to prototype new technologies.**

BUILDING COUNTRY
DIGITAL HEALTH CAPACITY

ADVANCING
NATIONAL DIGITAL
HEALTH STRATEGIES



LEVERAGING
GLOBAL GOODS

STRENGTHENING
NATIONAL DIGITAL
HEALTH ARCHITECTURES

> CONTEXT



Photo: Daljit Singh

Managers and policy-makers within partner-country governments are seeking greater coordination among funders to streamline investments into scalable digital tools and interoperable systems that facilitate access to and use of health data. A growing number of global health funders who endorse the *Principles of Donor Alignment for Digital Health*²⁷, and produce strategy and vision

documents for digital health such as this one, are amplifying this call for rationalization. The emergence of a new “digital-health agenda”²⁸—a global consensus that a more coordinated and country-led approach to investments in digital-health technologies is necessary—finds support in a number of reports published by development, industry, and government entities.²⁹

POTENTIAL HARMS OF AN UNCOORDINATED APPROACH

In most low- and middle-income countries, donors have funded digital-health interventions in a siloed manner, by paying for tools developed by, and for, specific diseases and/or health-promotion areas. This fragmentation can pose a series of challenges:

- **Clients** can find their health data stored in disparate, unconnected systems, which contributes to uncoordinated care. They can wait long times to receive their results, often having to make multiple trips to clinics or hospitals at their own expense, or never get them at all. Individual-level reporting on health programs might make it difficult to aggregate data on the performance of facilities, which means clients could lack the information they could use to promote accountability. Additionally, with each different system that collects, stores, or transmits clients' private data, risks to the privacy of these data can multiply.
- **Health-care workers** often collect the same data points for multiple purposes, sometimes having to use different phones or tablets to report into different digital systems. As a result of this siloing of data, healthcare workers might not get effective feedback on their overall performance, and they might lack user-focused tools that support higher-quality care.
- **Managers of health-information systems** find themselves overstretched by requests to use and/or maintain duplicative systems, and yet still do not have the breadth of data they need. These challenges can impede effective and timely decision-making, such as regarding the allocation of resources or the delivery of high-quality care within their catchment areas.
- **Government ministries** can struggle to assemble a clear picture of the public's health needs to influence the allocations of resources, because data are locked behind non-interoperable digital systems. Similarly, they can lack the local technical staff to assess, maintain, and upgrade these systems and related tools, and to analyze and visualize the data these systems produce.

In addition to the potential for these unintended, negative consequences for country-level health actors, fragmented digital-health ecosystems can exacerbate the fragmentation of health institutions, including through the following:

- **The inefficient use of scarce resources:** Investments in individual, disease-focused, and non-interoperable tools can draw down resources that otherwise could support tools for adaptation and re-use across health (and potentially other) program areas;
- **Suboptimal access to, and use of, data:** The scattering of data across non-interoperable digital systems can impinge on the ability of both host governments and donors to gain access to data needed for reporting and health planning and the delivery of care; and
- **Harms to health outcomes:** This splintering of health data furthermore can confound the ability of clients to get coordinated care, of health workers to assess clients' complete histories, and of decision-makers to get a holistic picture of the public's health needs.

Across funders, this uncoordinated approach can lead to the following:

- **Fragmentation and non-alignment** of funded technologies and approaches, such as through the use of competing digital health-data systems that can complicate the collection, analysis, and use of public-health data;
- **A high burden of coordination** among invested projects that can impede self-reliance in managing national health data and systems; and
- **A lack of information** about the full portfolio of country-level investments in digital health, the absence of information about which can fuel spending on duplicative systems.

As a first step in responding to this growing call to action, the U.S. Government articulated its position on digital health at the meeting of the WHO Executive Board in January 2018.

U.S. GOVERNMENT STATEMENT ON DIGITAL HEALTH AT THE MEETING OF THE WHO EXECUTIVE BOARD IN JANUARY 2018

At the meeting of the WHO Executive Board that took place between January 22–27, 2018, at WHO headquarters in Geneva, Switzerland, the U.S. Department of Health and Human Services presented this common U.S. Government statement on digital health with input and approval from across the Federal interagency process:

“To overcome challenges of fragmentation and duplication of digital health systems around the world, greater coordination is needed, including among public and private funders. Recommendations include:

- First, that countries create and support the implementation of a digital health strategy reflecting priorities identified in the countries’ national health strategies;
- Second, financiers align their efforts on digital health with national digital health strategies. Where country-focused digital health strategies do not yet exist, their development should be prioritized;
- Third, that countries strengthen a digital health-enabling environment including support for capacity building and governance with a focus on privacy, accessibility, use of data and data systems;
- Fourth, that investments align with a country’s progression along the digital health continuum—starting with moving from paper to digital, culminating with a country’s transition to independent management of digital health technologies; and
- Fifth, that digital health can be a powerful tool for public health surveillance. It is important to understand a host nation’s infrastructure and capacity to implement effectively and manage these technologies, and to use the data that they produce. mHealth should be used appropriately depending on the context of an emergency, noting that in some situations, use of mobile technologies could put healthcare workers at increased risk, due to security issues.”

Subsequently, the U.S. Government contributed to the development of, and then endorsed, the [*Principles of Donor Alignment for Digital Health*](#). These Principles identify ten priorities that funders of country-level digital-health systems should take into account in their operations and investments.³⁰

THE PRINCIPLES OF DONOR ALIGNMENT FOR DIGITAL HEALTH

While adhering to the Principles for Digital Development and working through existing global and regional efforts, donors will do the following:

- Collaborate to align investments to national digital-health strategies
- Invest in national plans that incorporate “digital global goods” and avoid bespoke systems.
- Engage early to determine and quantify the long-term costs of operating, maintaining, and supporting digital-health systems for sustainable country ownership.
- Track investments, progress, learning, and successes in digital-health systems in a transparent manner.
- Strengthen donor technical skills and core capacities, including awareness of the *Principles for Digital Development*.

...and donors will invest in the following:

- The creation and evolution of a country’s national digital-health strategy, policies, and regulatory framework. Strategies include components such as architecture, standards, investment frameworks, and privacy protection, and detailed operational and monitoring plans.
- Systems at a level appropriate to a country’s progress along the digital-health maturity continuum.
- Sustainable country capacity for digital-health leadership, governance, implementation, oversight, global good adoption, and donor coordination.
- Scalable, sustainable, accessible, interoperable, and evidence-based digital-health global goods that meet national priorities.
- Diverse stakeholder information-sharing and peer-learning networks at the country and regional levels to foster the coordination and alignment of implementation activities.

The movement for coordination in digital health culminated in the passage by the WHA of Resolution WHA 71.12.4, Digital Health, in May 2018³¹:

“The Seventy-first World Health Assembly [...] urges Member States: (1) to assess their use of digital technologies for health, including in health information systems at the national and subnational levels, in order to identify areas of improvement, and to prioritize, as appropriate, the development, evaluation, implementation, scale-up and greater utilization of digital technologies, as a means of promoting equitable, affordable and universal access to health for all, including the special needs of groups that are vulnerable in the context of digital health [...]

Resolution WHA 71.12.4, Digital Health - May 2018

> VISION



USAID's *Vision for Action in Digital Health* identifies the following four strategic priorities to which our global, regional, and country-specific investments in digital technologies for health will align:

1 Assess and advance national and regional capacity for digital health, in particular that of in leadership and governance³²:

- **What is it?** An assessment of the use-environment can describe national digital-health capacity. As defined by the *National eHealth Strategy Toolkit* produced by the WHO and the International Telecommunication Union (ITU), the “digital-health enabling environment”³³ consists of the “building blocks” (leadership and governance; strategy and investment; services and applications; standards and interoperability; infrastructure; legislation, policy, and compliance) whose effective functioning is necessary for the success and long-term sustainability of digital-health interventions³⁴.
- **What should USAID do?** Benchmarking³⁵ and periodically updating the evolution of the enabling environment in each partner country is critical to ensuring that USAID’s investments leverage the strengths and address the weaknesses of national enabling environments for digital health. In some countries, significant assistance is needed to plan or manage national digital-health strategies and architectures. USAID should champion national capacity in digital-health leadership and governance, and enhance capacity for the management, architecture, policies, and standards for digital-health solutions.
- **Why is this a priority?** Investments in a country’s digital-health use-environment, and, in particular, its leadership and governance, are essential to enabling our investments in digital systems to reach their intended development outcomes. Investments in national capacity ensure that governments, civil society, and the private sector are adequately positioned to support systems-level activities such as multi-stakeholder governance, regulatory structures to protect patients’ data or enable the cross-border sharing of data, and technical working groups that prioritize and oversee interoperability among digital tools. These critical aspects of the implementation of digital health are frequently underfunded.

2 Support the development of, and align investments to, national and, where appropriate, regional digital-health strategies:

- **What is it?** Called for in the draft *WHO Global Strategy on Digital Health 2020-2024*³⁶, national digital-health strategies identify a common vision for how to address health priorities through the coordinated and strategic integration of digital technologies. Regional digital-health strategies can amplify national digital-health strategies and undergird cross-border data-sharing agreements. These efforts are critical to managing the health of communities in and around border areas, and in the context of preventing and responding to disease outbreaks to protect global health security.
- **What should USAID do?** USAID’s digital investments (e.g., in applications or services) should align to national digital-health strategies and their costed implementation plans, and support their implementation. Where national digital-health strategies are weak or do not exist yet, USAID’s planning and investments should support their development. Where regional digital-

health strategies exist, USAID's regional and bilateral Missions and programs should align their investments to related digital technology and enabling environment needs.

- **Why is this a priority?** Investments in country-based digital-health technologies in the absence of larger, national-level organizing frameworks have led to a proliferation of duplicative and fragmented systems that burden health workers and health institutions, and are unsustainable over the long-term. Strong, national and regional digital-health strategies and associated costed implementation plans provide an organizing rationale that can ensure funders' investments align to national and regional priorities and plans.

The development of country and funder digital-health strategies are enabling better financial forecasting and planning to understand and meet the long-term costs of operating digital systems. Countries like the Federal Democratic Republic of Ethiopia³⁷ and the United Republic of Tanzania³⁸ in which governments have published detailed digital-health investment plans are seeing co-investment in a common digital-health architecture allowing the use of digital-health applications across programmatic areas (e.g., tools for community health workers who deliver maternal and child health, malaria, and voluntary family-planning programs) and share common components (e.g., multiple applications that use the same facility codes from a national facility registry).

3 Support the development of, and align investments to, a national digital-health architecture:

- **What is it?** National digital-health architectures are blueprints that establish the health and information needs and the software and hardware requirements that governments must consider to deliver a variety of digitally-supported health programs in a coordinated manner. These blueprints can provide critical guidance to governments, the private sector, non-governmental providers, and donors about how to invest in digital technologies and services in an aligned way. National digital-health architectures also support, within the parameters of the enterprise architecture, how implementing organizations and health workers can use supported digital technologies to advance their work.
- **National digital-health architectures are a critical component of the transition from environments characterized by fragmented and duplicative digital systems and legacy processes to an integrated environment that is responsive to change.**³⁹ These architectures convey a breadth of information about how digital technologies collectively meet health-sector needs. For example, these architectures will identify which health-program use-cases digitized systems can support; which actors engage with, and benefit from, these systems; and how to exchange data safely and securely across multiple digital applications and services included in the digital-health architecture.
- **An enterprise architectural approach advocates for separating out business processes (e.g., identifying enterprise or personnel workflows) from information needs (e.g., specific data and information elements required to meet business-process needs), software decisions (e.g., which software and technology services support meeting these needs), and hardware decisions (e.g.,**

which computers, servers, power sources, connectivity infrastructure, and the like are required to maintain the physical architecture). When presented in combination, these architectural layers make up an enterprise architecture.⁴⁰ Each layer is continuously updated, which makes the enterprise architecture a “living” model that can adapt to change.

National digital-health architectures are critical to demonstrating how a national digital-health strategy will define and carry out country-level health objectives.

- **What should USAID do?** USAID should help fund and provide technical support for country-level planning for, and the development and implementation of, national digital-health architectures. Furthermore, USAID’s investments in digital systems, tools, applications, and services should align to, and meet the requirements of, these national digital-health platforms. USAID also must guard against the abuse or manipulation of digital technology, and avoid helping to create or support systems that could allow governments to use citizens’ genetic or health data against them. USAID should advocate for open architecture and open standards where appropriate.
- **Why is this a priority?** Aligning USAID’s digital-health investments with a national digital-health architecture will aid in strengthening the maturation and effective functioning of health institutions and lower the financial and management burden of competing digital tools. Digital-health architectures defined at the country level also enable the identification of common, standards-based, reusable digital components⁴¹ (e.g., services for digital identity, financial services, and messaging) that address the needs of multiple sectors, for example a teacher who uses her digital wallet to receive payments, manage health savings, and pay for her children’s school fees.



Photo: Securing Water for Food

4 Adapt, re-use, and, where needed, provide support to global goods:

- **What are they?** “Global goods,” including software and knowledge products (e.g., assessment models or reference guides), are adaptable and reusable to meet the diverging needs of various geographic or thematic contexts. They are often, but not always, open-source; however, “open-source” does not always mean “free of cost.” or “free of intellectual-property rights (IPR).”⁴² In the global health context, they are tools collaboratively developed, funded, and implemented by multiple parties. Global goods are designed to meet the use-environments needs of, and be deployable at scale in, LMICs.
- **What should USAID do?** USAID should begin tracking our investments in national digital-health systems and enabling environments in a more granular way to support better understanding and leveraging of these investments over time. Particularly in our investments in digital technologies (e.g., mobile applications, data systems), by default USAID should assess the availability of existing software⁴³ for adaptation and re-use, and understand upfront as well as ongoing costs.⁴⁴

USAID should include in our estimates both the cost of implementing software global goods (e.g., for disease-specific supply-chain monitoring, or the collection of data on maternal and child health) and the cost of the development of core software. This will ensure the adequate maintenance of the code base, and its continuous improvement, including to ensure performance and securitization. Additionally, USAID’s investments in the adaptation and re-use of software global



Photo: Riaz Jahanpour, USAID

goods should prioritize engaging regional or in-country partners—including individual software-development consultants or private-sector entities—to manage and develop these tools, and to provide capacity-building support to these partners where needed.⁴⁵

Should the Agency decide after analysis that investments in new software are necessary, whenever possible that source code should be “free and open-source” and made publicly available with supporting implementation guidance to further its adaptation and re-use. Where USAID contributes to the development of knowledge products, we should do so in collaboration with the community⁴⁶, use open licenses, and provide those tools for their broadest-possible uptake, adaptation, and re-use, translated into local languages. Regardless of the digital technology procured, USAID’s investments in country-based digital-health technologies should plan for their sustainability during and after our funding, to prevent fragmentation and ensure critical systems are not shut down due to lack of funding.

- **Why is this a priority?** Whenever possible, USAID should invest funding from U.S. taxpayers in publicly available tools that are improvable and adaptable for further re-use. This is not to say, however, that the Agency does or should not invest in proprietary products. USAID should streamline our investments, leverage a variety of financing across development sectors and funding sources, and strengthen a holistic approach to paying for digital architecture and services that national governments and other partners can sustain reasonably over the long term.

Taken together, these actions will allow USAID’s programmatic activities in global health in a manner that conforms to the *Journey to Self-Reliance*. By investing in digital and data systems, and the country-level enabling environment in the context of efforts to achieve specific health objectives, we ensure that the health sector in our partner countries undergo digital transformation in a rationalized and planned manner. This alignment is essential to promoting the financial sustainability, interoperability, and effective enterprise-level planning of digital systems, and the skilled management and use of digitized data by governments, civil society, and the private sector in support of their own health and development objectives.

USAID will make these investments when and where consistent with U.S. values and national-security priorities. As articulated in the *U.S. National Cyber Security Strategy*⁴⁷, the United States is committed to ensuring the protection and promotion of an open, interoperable, reliable, and secure Internet that represents and safeguards the online exercise of human rights and fundamental freedoms—such as freedom of expression, association, religion, and peaceful assembly. The *USAID Digital Strategy* details the need to ensure our investments in digital systems and their enabling environments account for risks and take steps to safeguard digital ecosystems.⁴⁸ USAID will not fund or support national digital-health strategies or architectures that enable “digital authoritarianism,” in which a repressive government controls the Internet and uses censorship, surveillance, and data/media laws or regulations to restrict or repress freedom of expression, association, religion, and peaceful assembly at scale.

VALUE PROPOSITION



Photo: Riaz Jahanpour, USAID/Tanzania

Guiding USAID's investments in our programs in global health in line with these four priorities will convey multiple benefits for health institutions, the delivery of health care, and health outcomes. Strengthened underlying country-based digital-health systems furthermore will benefit all health programs, regardless of disease or health-promotion area, by improving the availability, timeliness, quality, and accessibility of health data. For governments, civil society, the private sector, and their funding partners, better data, in turn, can strengthen the management, efficiency, effectiveness, reporting, monitoring, evaluation, and learning of programs. Better data will also enrich the analysis and use of data and data-driven decision-making.

Government leaders can better align their ongoing investments and coordinate disparate, technology-based systems to optimize the accessibility of data for use, systems-maintenance, and long-term sustainability.

Managers of country-health and public-health institutions can leverage the increased quality and availability of health data for greater visibility into programmatic impact, including on patient care, and the relative efficacy of different interventions, which will enable better decision-making and allocations of resources. For example, knowing the real-time demand for various medicines and health commodities, or the level of training and availability of health professionals, is critical. Health managers at all levels can better analyze the performance of institutions and identify gaps with a combination of

epidemiological, supply-chain, human-resource, and financing data.

Clients, previously seen as passive beneficiaries, can obtain better health care through a continuum of delivery in which they play an active role. With digitization, individuals can become more-proactive custodians of their own health and wellness, such as through increased access to, and uptake of, innovation, including digital therapeutics.⁴⁹ They also have more access to information, such as through treatment-adherence reminders, they can use to manage their own well-being. Additionally, interoperable digital systems that use a common patient-identification system can enable longitudinal tracking that supports improved quality of care as clients and their data move through disparate healthcare delivery points and programs.

Health workers, who previously just reported data, can now leverage digital technologies to play more active roles that influence the organization of healthcare delivery. The extending reach of digital technologies is enabling new information and data flows within and among an increasingly diverse set of actors, including frontline health workers, government ministries, citizens, delivery partners, and financial intermediaries such as providers of mobile banking and insurance. These new methods of engagement can enable increased transparency, accountability, and action. Digitization also offers numerous transformative opportunities for point-of-care decision-makers. As health institutions increasingly shift tasks to cadres that are less trained, having digital decision-support, training, and monitoring tools in place can help improve and maintain quality of care.

Funders can extend the impact of limited resources and, in the case of USAID's funding, amplify U.S. taxpayer investments through coordinated and efficient approaches that enhance the impact of non-digital investments and better position governments, civil society, and the

private sector to manage health institutions in the future. By aligning our investments with national strategies, architectures, and by promoting the use of global goods, USAID can realize a number of transformational benefits. These benefits include enabling cost-efficiencies that are fundamental to advancing the *Journey to Self-Reliance*. More coordinated and harmonized investments in digital systems will accelerate the Journey to Self-Reliance—particularly where host-country resources match these investments, and are amplified by co-investment from other financiers.⁵⁰

Additionally, digitization can ensure that a greater diversity of actors participate in exchanges of data and information. For instance, multi-directional communications (e.g. text messaging and use of digital conversation platforms) can now take place between government ministries and their remote health workforce, amongst health workers, or between health workers and citizens.

Digitization also has great potential to overcome challenges related to payment for health care. This benefit includes remuneration of frontline health workers, resource-pooling for insurance funds, resource transfers from central levels to frontlines by increasing access to financial services (such as banking, insurance, and payment services enabled by digital channels), and micro-loans, digital vouchers, or other capital provisions for citizens to use health care. Financial inclusion can lower financial barriers to access to health care, and digitizing these financial services also provides data that can further inform decision-making.

LOOKING FORWARD



Photo: USAID

Integrating *USAID's Vision for Action in Digital Health* will require a cultural shift in the way the Agency operates. This will require the deepening of existing, and the onboarding of new, technical expertise, a cross-cutting and integrated approach to the use of digital technologies in our programs, and new thinking about the relevance of digital tools to our existing country-level activities across all phases of USAID's program lifecycle.

USAID will follow the *Vision* with a series of technical guidance notes to help our staff navigate technical concepts and implement them across our Program Cycle. In addition to the internal work USAID must undertake,

the Agency will reach out to our external partners—including host-country governments, civil society, patient groups, other donors, implementing partners, and private-sector stakeholders—to share this *Vision* and seek their collaboration in translating it into action. USAID will advance this engagement by encouraging these actors to adopt a common approach to digital health, as well as by listening to, and learning from, external partners. Notably, USAID will seek close and continued engagement with national governments, and with other endorsers of the *Principles of Donor Alignment for Digital Health* that are undergoing related change-management processes.

PREPARING USAID TO DELIVER

In conjunction with strategic reforms that accompany *USAID's Digital Strategy*, the Agency will conduct internal assessments to create detailed recommendations that can guide the implementation of this health-sector *Vision*.⁵¹ Specific aspects of USAID's operations that require further reform as this work moves forward include the following:

Policies and processes as they relate to the funding and implementation of digital technologies in our partner countries, including to safeguard against the abuse of the systems in which USAID invests;

Procurement, including to ensure that USAID's planned investments conform to established good practice, such as those articulated in the *Principles for Digital Development* and the *Principles of Donor Alignment for Digital Health*; support national and regional capacity for digital health, including governance and workforce capacity, and digital transformation; align to national and/or regional digital-health strategies and architectures where they exist (or support their development and strengthening as needed); and use evidence-based digital-health interventions wherever possible;

Partnerships, including with host governments, civil society, non-governmental providers, patient groups, other donors, multilateral organizations, multinational corporations, and local private-sector actors, as well as academic

and research institutions, global and regional communities of practice⁵², and the community of implementing partners through which the vast majority of USAID's funds flow;

Organizational capacity, including through an analysis of USAID's existing digital-health capacities—and an assessment of related coordination, guidance, and oversight needs—to determine how best to build these capacities and functionalities within the Agency underneath the larger *Digital Strategy*;

Technical capacity of staff, including that of existing employees, to determine where additional capacity is needed, whether through dedicated trainings and/or the recruitment of new technical staff, such as country- and/or regionally-based digital-health advisors;

Tracking of investments, to identify where and how the Agency should create a clear and transparent accounting of our digital-health investments, including to highlight and track co-investment (both within

USAID and with other funders) in shared digital infrastructure;

Monitoring and evaluation, to ensure the Agency rigorously applies standard-setting practices and best evidence for digital-health programming and interventions, contributes to building the digital-health evidence-base, and effectively leverages digital technologies in benchmarking and assessing the state of global health gains or losses, such as those caused by COVID-19 and its secondary and tertiary impacts;

Knowledge-management to understand how the Agency's staff experience, find, use, and share learning about strengthening health outcomes with digital technologies, and how to enrich these experiences; and

Communications and advocacy capacities, to build and deliver on a strategic plan to raise the awareness and understanding of, and engagement in, this functional area across USAID's Bureaus, independent offices, headquarters, and field staff.

Finally, USAID must reflect on how to share lessons learned in global health with other development and humanitarian actors within the Agency, and vice versa, in alignment with our *Digital Strategy's Digital Learning Agenda*. This collaborative approach is essential to aligning USAID's investments in sustainable, interoperable digital systems that empower the *Journey to Self-Reliance*, including through the independent management, funding, and governance of digital systems and the data they produce over time. This collaboration will include an exploration of aligned investments in shared digital services used across sectors.

> CONCLUSION



Photo: KC Nwakalor, USAID

“ WISELY AND WIDELY USED, DIGITAL HEALTH CAN BOLSTER *access to healthcare*, *raise the quality* AND DIMINISH THE COSTS OF PROVIDING IT AND *empower patients* TO TAKE MORE RESPONSIBILITY FOR THE MANAGEMENT OF THEIR OWN HEALTH.”

- Broadband Commission for Sustainable Development⁵³

USAID's inaugural *Vision for Action in Digital Health* charts a course for more strategic, systems-level planning for, support to, and use of digital technologies; the data they produce; and their enabling environments. It provides an opportunity to strengthen health institutions and measurable outcomes while making the most-efficient use of scarce public resources, aligning to national priorities and needs, and accelerating the *Journey to Self-Reliance*. It is a critical step toward strengthening resilience to infectious-disease outbreaks, and reaching our global health goals.

A future state informed by the implementation of this *Vision* is open for crafting. The benefits of strengthened health institutions and providers supported by well-planned and interoperable digital systems are vast. They include the long-sought-after goals of enabling the longitudinal tracking of patients throughout the continuum of care, and linking population-level data to other sources of

information to yield richer insights for health-sector decision-making. The strategic integration of digital technologies can also empower people—from frontline health workers to national health policy-makers to clients, and those who might be beyond the current reach of formal health care. In an era marked by global goals that seek to reach everyone, everywhere, with an equitable, high quality of care, this potential is ever more important to realize—particularly as it enables individuals to assess, monitor, and promote their own well-being more proactively.

USAID believes this *Vision*, and the associated technical guidance that will follow its publication, will shepherd a new generation of investments that empower partner-country stakeholders to more fully and strategically leverage the transformative potential of digital technologies. The publication of this *Vision* marks the beginning of this journey; a journey we will take together.

GLOSSARY

Costed Implementation Plan	A document that describes, in sequence, an identified set of challenges, accompanied by a contextually appropriate and financially justified mitigation strategy. A costed implementation plan, or proposal, can obtain financial support to implement the proposed activities of a government-driven investment in digital health. ⁵⁴
Digital Ecosystem	<p>The public and private stakeholders, systems, and enabling environment that together empower communities to use digital technology to gain access to services, engage with each other, or pursue economic opportunities. Key components of a healthy digital ecosystem include the following:</p> <p>A foundation of inclusive digital infrastructure and government policy;</p> <p>Digitally enabled public- and private-sector institutions that advance a country's development priorities; and</p> <p>Digitally empowered individuals who can take full advantage of these opportunities and influence the digital economy.⁵⁵</p>
Digital Health	Digital health is the systematic application of information and communications technologies, computer science, and data to support informed decision-making by individuals, the health workforce, and health institutions, to strengthen resilience to disease and improve health and wellness for all. ⁵⁶
Digital-Health Architecture	An overview or blueprint used to design and describe how different digital applications (software and systems for information and communications technology) and other core functionalities will interact with each other within a given context.
eHealth	A previously independent domain that refers to healthcare practice(s) supported by electronic processes and communication, or healthcare practice through the Internet. ⁵⁷ eHealth is now considered part of the larger digital health domain.

eLMIS	Electronic logistics-management information system, a system of records and reports used to aggregate, analyze, validate, and display data used to make logistics decisions and manage health supply-chains.
Global Goods	Digital health tools adaptable to different countries and contexts. There are three types of digital global goods: software, services, and content. Software global goods are frequently open-source. ⁵⁸
Health-Management Information System (HMIS)	A health-management information system (HMIS) stores routinely collected aggregate health data and facilitates their analysis with the goal of improving the quality of health services. ⁵⁹
Information and Communications Technology (ICT)	All equipment, applications, and services that involve communication. Computers, cellphones, televisions, radios, and satellite systems are all part of ICT.
Interoperability	The ability of different applications to access, exchange, integrate, and cooperatively use data in a coordinated manner through the use of shared application interfaces and standards, within and across organizational, regional, and national boundaries, to provide timely and seamless portability of information and optimize health outcomes. ⁶⁰
mHealth	A previously independent domain most commonly used in reference to health applications and programs that use mobile devices. ⁶¹ mHealth is now considered part of the larger digital health domain.

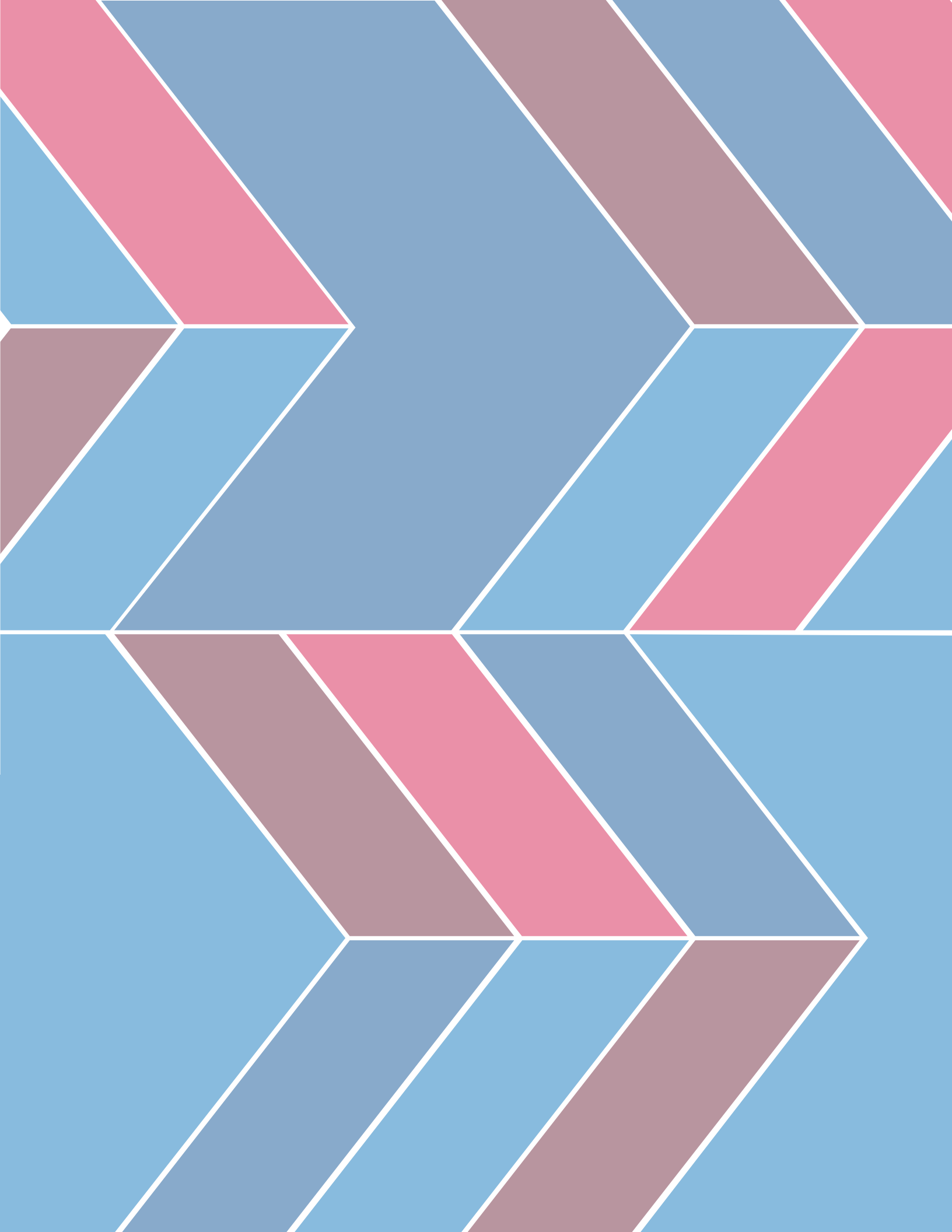
ENDNOTES

- 1 Definition developed by the Key Terms and Theory of Change small working group of the Digital Health and Interoperability Working Group in 2020.
- 2 World Health Organization (WHO), "Classification of Digital Health Interventions, v1.0," 2018, <https://apps.who.int/iris/bitstream/handle/10665/260480/WHO-RHR-18.06-eng.pdf;jsessionid=82FE71E981CF4148E5961CD9CE61D2DD?sequence=1>.
- 3 WHO, "Global Strategy on Digital Health 2020-2024," 2019, 2, <https://extranet.who.int/dataform/upload/surveys/183439/files/Draft%20Global%20Strategy%20on%20Digital%20Health.pdf>.
- 4 USAID, "The Role of Digital Financial Services in Accelerating USAID's Health Goals," 2019, 3, https://www.usaid.gov/sites/default/files/documents/15396/DFS_Accelerating_USAID_HealthGoals.pdf.
- 5 USAID, "Discussion Note: Adaptive Management," 2018, https://pdf.usaid.gov/pdf_docs/PBAAJ032.pdf.
- 6 A timeline of the global COVID-19 outbreak is available at https://www.who.int/news-room/detail/27-04-2020-who-timeline---covid-19?gclid=EAlalQobChMlpZmf04nI6glVywilCR0RMQR5EAAYASAAEglFsfD_BwE
- 7 "Digital transformation" refers to the digitization of paper-based systems, as well as the accompanying change-management—sometimes referred to as "digitalization"—of business practices or government or institutional policies, processes, capacities, and workflows to use digitized systems and data effectively. In addition to this digitization and digitalization, digital transformation accounts for the human behavioral and institutional cultural adaptations required to support the successful uptake and use of digital systems, and digital data and information, as part of a routine course of business.
- 8 Becky McCall, "COVID-19 and artificial intelligence: protecting health-care workers and curbing the spread," *The Lancet Digital Health*, 2020, [https://www.thelancet.com/pdfs/journals/landig/PIIS2589-7500\(20\)30054-6.pdf](https://www.thelancet.com/pdfs/journals/landig/PIIS2589-7500(20)30054-6.pdf)
- 9 Learn more about the priority areas for USAID's Bureau for Global Health at <https://www.usaid.gov/global-health>.
- 10 An example of a regional digital-health strategy at the supra-national level is the Digital Regional East Africa Community Health Initiative: <https://www.eahealth.org/digital-reach-initiative>
- 11 We use the term "align" to mean that USAID's planning, funding, and activities at a minimum should not be discordant with the four strategic priorities identified in this Vision, and ideally directly support their country-level implementation.
- 12 Harvard Global Health Institute, "Mature tech solutions in the COVID-19 response," YouTube video, 1:00:03, June 4, 2020, <https://youtu.be/lc1B4Lfl6rs>.
- 13 USAID, "Policy Framework: Ending the Need for Foreign Assistance," April 2019, https://www.usaid.gov/sites/default/files/documents/1870/WEB_PF_Full_Report_FINAL_10Apr2019.pdf.
- 14 Throughout the Vision, the word "country" does not mean "government"; USAID recognizes that the ecosystem for health in a nation includes civil society, the public, and the private sector as well.
- 15 USAID recognizes that open-source software are not free of cost to adapt, maintain, or implement, nor are they always free of intellectual-property rights (IPR).
- 16 USAID, "USAID's Digital Health Strategy," last modified June 24, 2020, <https://www.usaid.gov/usaaid-digital-strategy>.
- 17 Principles for Digital Development, <https://www.digitalprinciples.org>.
- 18 Digital Investment Principles, "The Principles of Donor Alignment for Digital Health," www.digitalinvestmentprinciples.org
- 19 General Assembly resolution WHA 71.12.4, Digital Health, A71/A/CONF/1, May 21, 2018, PP7, http://apps.who.int/gb/ebwha/pdf_files/WHA71/A71_CONF1-en.pdf.
- 20 WHO, "Global Strategy on Digital Health 2020-2024," 2019, <https://extranet.who.int/dataform/upload/surveys/183439/files/Draft%20Global%20Strategy%20on%20Digital%20Health.pdf>.
- 21 U.S. Congress, House, *National Defense Authorization Act for Fiscal Year 2020*, HR 2500, 116th Cong., 1st sess., introduced into House May 2, 2019, <https://www.congress.gov/116/bills/hr2500/BILLS-116hr2500eh.pdf>.
- 22 USAID, "ADS Series 500," last modified April 6, 2020, <https://www.usaid.gov/who-we-are/agency-policy/series-500>.
- 23 USAID, "Considerations for Using Data Responsibly at USAID," last modified June 12, 2020, <https://www.usaid.gov/responsibledata>.
- 24 WHO, "Recommendations on digital interventions for health system strengthening," 2019, <https://www.who.int/reproductivehealth/publications/digital-interventions-health-system-strengthening/en/>.

- 25 The 2018 McKinsey report *Barriers to Digital@Scale* states: "Digitalization at scale requires multiple steps (digital strategy development, securing financing, building institutional capabilities, revising policy and regulations, delineating roles/responsibilities, designing and refining digital solutions, and advancing a culture of information use); however, making the organizational culture shifts seems to be the most difficult to achieve."
- 26 Relevant USAID staff include those in Washington and our Missions and field offices who are designing *Country or Regional Development Cooperation Strategies*, overseeing programs in health or digital development, devising or managing programming and external partnerships, and working with the Office of the Office of Management and Budget and the U.S. Congress to secure support in the President's Budget Request and annual appropriations for digital, data, and innovation-related programs.
- 27 Digital Investment Principles, "The Principles of Donor Alignment for Digital Health," <https://www.digitalinvestmentprinciples.org>.
- 28 An excerpt from remarks by a representative of the Government of India in welcoming the WHA resolution digital health in May 2018.
- 29 These reports include those from industry associations (GSMA – *Scaling Digital Health in Developing Markets*, June 2017), scientific and technical communities (National Academies of Science, Engineering, and Medicine – *Global Health and the Future Role of the United States*, May 2017), and multinational entities (International Telecommunications Union-United Nations Economic, Scientific, and Cultural Organization Broadband Commission for Sustainable Development – *Digital Health: A call for Government Leadership and Cooperation between ICT and Health*, February 2017).
- 30 To assess where a country lies in the digital-health "maturity continuum," refer to tools such as the [Digital Health Index](#) and [Digital Health Atlas](#). A range of digital-health "maturity" assessment tools are available at https://wiki.digitalsquare.io/index.php/Digital_Health_%26_Interoperability_Working_Group#Maturity_assessments.
- 31 General Assembly resolution WHA 71.12.4, *Digital Health*, A71/A/CONF/1, May 21, 2018, PP7, http://apps.who.int/gb/ebwha/pdf_files/WHA71/A71_ACONF1-en.pdf.
- 32 Accomplishing this goal requires strong leadership commitment from governments, civil society, and the private sector.
- 33 The "digital-health enabling environment" is synonymous with the term "digital ecosystem" used in the [USAID Digital Strategy](#) to refer to "the stakeholders, systems, and enabling environments that together empower people and communities to use digital technology to gain access to services, engage with each other, or pursue economic opportunities[.]" (USAID Digital Strategy: 2020-2024, p3). This Vision uses the term "enabling environment" to be consistent with terminology for the use of digital technology in the health sector:
- 34 WHO-ITU, "National eHealth Strategy Toolkit," 2012, 8-9, https://www.itu.int/pub/D-STR-E_HEALTH.05-2012.
- 35 Two tools emerging as standards for country digital health ecosystem assessments include the [Digital Health Index](#) for an assessment of enabling environment "building blocks," and the [Digital Health Atlas](#) for the landscaping of digital systems that are in use in-country. At the time of publication of this Vision, conversations were underway to surface data across the two platforms for more-seamless use.
- 36 WHO, "Global Strategy on Digital Health 2020-2024," 2019, <https://extranet.who.int/dataform/upload/surveys/183439/files/Draft%20Global%20Strategy%20on%20Digital%20Health.pdf>.
- 37 For more information, see "The Information Revolution Roadmap" published by the Ethiopian Ministry of Health, published in April 2016: <http://www.moh.gov.et/documents/20181/21665/Information+Revolution+Roadmap.pdf/f3616f71-ab2c-486c-b720-db767d627208>, (Last accessed September 25, 2018.)
- 38 For more information, see "The Journey to Better Data for Better Health in Tanzania 2017-2023," published by the Tanzanian Ministry of Health, Community Development, Gender, Elderly and Children: https://path.azureedge.net/media/documents/DHS_health_tanzania_rpt1.pdf. (Last accessed September 18, 2018.)
- 39 The Open Group, The TOGAF® Standard, Version 9.2, 2018, <https://pubs.opengroup.org/architecture/togaf9-doc/arch/index.html>.
- 40 The four layers of an enterprise architecture are most commonly referred to as business-process architecture, information architecture, applications architecture, and technology architecture.
- 41 ITU and Digital Impact Alliance, "Sustainable Development Goals Digital Investment Framework," September 2018, 9, https://www.itu.int/dms_pub/itu-d/opb/str/D-STR-DIGITAL.02-2019-PDF-E.pdf.
- 42 Frequently, software global goods are distinguished by having a Free and Open Source (FOSS) license, defined by Wikipedia as code base that has "licenses that allow users to freely run the program for any purpose, modify the program as they want, and also

to freely distribute copies of either the original version or their own modified version as having freely running program.” USAID recognizes that in this context “free” refers to access, rather than cost. FOSS tools require a range of costs that in some cases can include acquiring the software, but always include those related to the maintenance and adaptation of the code base, customization to meet national requirements, the ongoing maintenance and securitization of the code, as well as costs related to the implementation of the software (e.g., workforce training, documenting and sharing back-code adaptations, and managing changes to workflow and business processes.) For content global goods, a Creative Commons (CC) license is one of several public copyright licenses that enable the free distribution of an otherwise copyrighted “work.” An author uses a CC license when he or she wants to give other people the right to share, use, and build upon a created work. Both license types protect intellectual property by allowing legal re-use and adaptation..

- 43 See for example a list of software global goods available at https://wiki.digitalsquare.io/index.php/Main_Page, and in use by country at www.digitalhealthatlas.org.
- 44 For costing frameworks, see for example the “[Budgeting for Country Digital Health Implementations](#)” annex to the USAID Software Global Goods Financial Valuation Framework (2019), as well as the “[How to Calculate Total Lifetime Costs of Enterprise Software Solutions](#)” tool.
- 45 Engaging country- or regionally-based software-development consultants or firms is critical to the transition to independent management and use of these systems, an important component of the [Journey to Self-Reliance](#) in the digital age.
- 46 See for example the [Digital Health and Interoperability Working Group](#).
- 47 The White House, “National Cyber Strategy of the United States of America,” September 2018, <https://www.whitehouse.gov/wp-content/uploads/2018/09/National-Cyber-Strategy.pdf>.
- 48 USAID, “Digital Health Strategy 2020-2024,” 13-19, https://www.usaid.gov/sites/default/files/documents/15396/USAID_Digital_Strategy.pdf.
- 49 Digital Therapeutics Alliance, “What are Digital Therapeutics?,” 2020, <https://dtxalliance.org/dtx-solutions/>.
- 50 See for example the [Digital Square mechanism](#), designed to enable co-investment in global goods and national digital-health priorities. At the time of publication, the mechanism had leveraged over \$35 million of financing, approximately 60 percent of which originated from USAID and 40 percent from other funders..
- 51 This will include the alignment of our efforts to assess and build the digital literacy and capacity of USAID’s staff; integrate established digital best practices into USAID’s central program and Mission strategies, activities, and monitoring, and evaluation; and identify and co-invest in cross-sectoral digital systems, for example.
- 52 These may include the [Global Digital Health Network](#), the [Asian eHealth Information Network \(AeHIN\)](#), the [Digital Health & Interoperability Working Group](#), [OpenHIE](#), and others.
- 53 Broadband Commission for Sustainable Development, “Executive Summary to Digital Health: A Call for Government Leadership and Cooperation between ICT and Health,” February 2017, 2, <https://broadbandcommission.org/Documents/publications/WorkingGroupHealthExecutiveSummary-2017.pdf>.
- 54 WHO, “Digital Implementation Investment Guide (DIIG): Integrating Digital Interventions into Health Programmes,” publication forthcoming, 134.
- 55 USAID, “USAID’s Digital Health Strategy,” last modified June 24, 2020, <https://www.usaid.gov/usaid-digital-strategy>.
- 56 Definition developed by the Key Terms and Theory of Change small working group of the Digital Health and Interoperability Working Group in 2020.
- 57 WHO, “Global diffusion of eHealth: making universal health coverage achievable. Report of the third global survey on eHealth,” December 2016, https://www.who.int/goe/publications/global_diffusion/en/.
- 58 A more detailed definition is available at the [Digital Square wiki](#).
- 59 WHO, “Digital Implementation Investment Guide (DIIG): Integrating Digital Interventions into Health Programmes,” publication forthcoming, 97.
- 60 WHO, “Digital Implementation Investment Guide (DIIG): Integrating Digital Interventions into Health Programmes,” publication forthcoming, 135.
- 61 WHO, “mHealth: New horizons for health through mobile technologies. Global Observatory for eHealth series – volume 3,” 2011, accessed May 24, 2018, https://www.who.int/goe/publications/goe_mhealth_web.pdf.





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