USAID
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USAID
Digital Health
POSITION PAPER

2024-2029

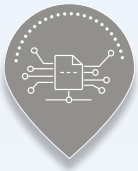
DEFINING DIGITAL HEALTH

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 for strengthened resilience and improved health and wellness for all.[1] The field of digital health, which is a professionalized subdomain of global health, includes an array of digital technology-based disciplines, including the application of big data, advanced analytics, artificial intelligence (AI), and digital public infrastructure,[2] as well as areas of specialization alternatively referred to as eHealth, mHealth, medical informatics, health informatics, health information systems,[3] telemedicine, and telehealth. Digital health can support multiple aspects of health systems, including health information systems, health system financing, health workforce, leadership and governance, service delivery, and medical products, vaccines, and technologies.

USAID'S FOUR PRIORITIES FOR PROGRAMMATIC DIGITAL HEALTH INVESTMENTS

Assess and strengthen a country's digital health enabling environment
Investments in a country's digital health use environment are essential to enabling our investments in digital systems to reach their intended development outcomes. Core building blocks of this enabling environment include health-sector digital: leadership and governance; strategy and investment; services and applications; standards and interoperability; infrastructure; and legislation, policy, and compliance, together with data use.

Align digital health investments to national digital health strategies*
National digital health strategies identify a common vision for how countries address their health priorities through the coordinated and strategic integration of digital technologies. 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.



Align digital health investments to national digital health architecture*
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. Also referred to as enterprise architecture, these plans provide critical guidance to governments, the private sector, nongovernmental providers, and donors about how to invest in digital technologies and services in an aligned way. This approach can also be referred to as digital public infrastructure (DPI)[4] for health.

Consider the use of global goods
Global goods are open source digital tools that have no barrier to access for services, are available under open content licenses, are supported by an anchor organization or strong community, have clear governance structures, have been deployed at scale, are used across multiple countries, have demonstrated effectiveness, are designed to be interoperable, and are on a continuum toward sustainability for the tool or service.[5] Software global goods are mature digital public goods (DPGs).[6]

* Where national digital health strategies and architecture are nascent, weak, or not yet in existence, USAID should support their development in support of country health goals.

INTRODUCTION

USAID envisions a world in which all people have equitable access to safe, secure, and reliable health services and data to promote well-being.

To support reaching this goal in an era of increasing digitalization,[7] the USAID Digital Health Position Paper (2024–2029) lays out a strategic vision for USAID investments and activities that advance global health using digital technologies.[8]

USAID believes that digital technologies can be a critical enabler of global health and broader socioeconomic development when invested in and managed strategically. To deliver this strategic value, USAID's investments and activities that leverage digital technologies should be aligned to meet and advance the health-sector digital maturity of partner countries,[9] as described in the four programmatic priorities laid out in USAID's Vision for Action in Digital Health: 2020–2024 (Digital Health Vision).[10] This position paper builds on the Digital Health Vision by identifying six practices to help USAID operationalize the Vision's four priorities for digital health programmatic investments.

USAID's goal is to advance partner country efforts to provide integrated and equitable health services, supported by digitally enabled health systems and health workers using high-quality, interoperable tools and data to improve health outcomes. Achieving this goal is possible through strategic, sustainable, and locally supported investments in digital technologies and country ecosystems; such efforts can improve health and well-being for all. In addition to being grounded in USAID's Digital Health Vision, this position paper builds on related policies,[11] including the forthcoming 2024–2034 USAID Global Health Policy and the 2024–2034 USAID Digital Policy.[12] It is part of USAID's broader embrace of open, inclusive, secure, and rights-respecting[13] digital ecosystems[14] as a foundation for and accelerant of the agency's social and economic development programs.

The primary audience for this position paper is the USAID workforce managing relevant health-sector investments and activities across the program cycle.[15] Important secondary audiences of this position paper include partner governments; multilateral, bilateral, and other global health funding organizations; USAID-funded partners; the private sector, including local[16] enterprises; civil society, including locally led development organizations;[17] academia; and those engaged in or by USAID's work.

BACKGROUND

USAID has a history of innovative approaches, including the application of digital technologies to advance development[18] and global health. While a significant gap in access to digital connectivity remains to be addressed, including a persistent gender digital divide[19] (see the "Equity in Health Sector Digital Transformation" text box in the Annex), access to online information and services is expanding rapidly worldwide. Unlocking the full value of this opportunity, however, requires a deliberate investment approach.

Over the past 30 years, many innovative programs that use digital technologies to meet health needs have scaled, frequently making important contributions to improving health outcomes. Yet, national-level plans to manage health-sector digital transformation are scarce. Countries and their development partners must work with fragmented and unsustainable digital systems that are dependent on public health data that's locked into noncompatible formats.

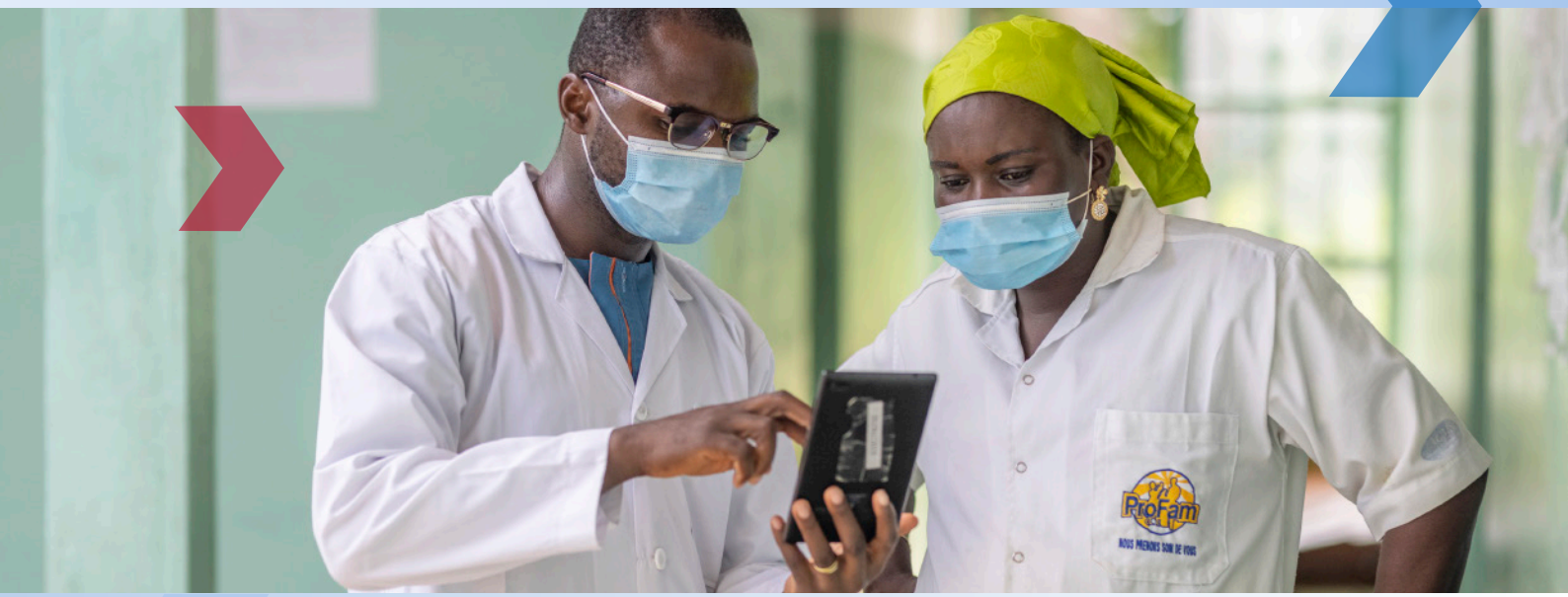
Countries often possess redundant tools performing similar functions within a health system (e.g., collecting data, managing supply chains, maintaining health records). Since these tools were designed to meet the needs of a single health program, frequently they were not developed to enable the exchange and reuse of data. This lack of interoperability has impeded health data use and contributed to a "fog of information"[20] that is particularly detrimental in health emergencies. Additionally, because many of these tools were designed to facilitate data capture for reporting purposes, they prioritize the needs of health funders and health systems managers over those of the health workers delivering care.

PROBLEM STATEMENT

In 2020, the USAID Digital Health Vision formally recognized and addressed both the problem of fragmented, noninteroperable, and unsustainable digital systems and the obstacles they pose to achieving global health goals. The Digital Health Vision has helped catalyze collaborative work by USAID with governments and development partners to shift investments away from digital health systems that are siloed by health program area and toward systems that strengthen national-level, health-sector digital transformation.[21] In alignment with the Digital Health Vision's four priorities, USAID also deepened its work to strengthen partner countries' digital health governance, policy, and health-sector digital architecture;[22] this is achieved by leveraging data and information exchange standards to enable better access to health information when and where needed.

While USAID has made significant contributions to strengthening the digital transformation of both partner country health systems and the broader health sector, much work remains. The issues of fragmentation, lack of data interoperability, and digital health system sustainability must be addressed. Today, variously funded digital systems are siloed by health programs, unsupported by standards, or designed primarily to extract data for reporting purposes. They risk contributing to negative outcomes[23] that can undermine global health efforts. These issues include:

- undermining patient health outcomes due to a lack of coordinated care;
- jeopardizing patient trust and safety due to gaps in data governance[24] and cybersecurity;[25]
- burdening health workers by requiring duplicative data entry and rendering incomplete access to patient records;
- obscuring the insights of health system managers into health system performance, due to limited interoperability of health data;
- impeding governments from assembling a clear picture of public health needs;
- creating inefficiencies by investing in duplicative systems;
- inhibiting the ability of countries and their development partners to scale and sustain duplicative systems;
- disrupting, by investing in verticalized digital systems, more sustainable financing models that could support a common, multipurpose health-sector digital infrastructure; and
- restricting partner countries regarding access to and use of their public health data.[26]



APPROACH—SIX PRACTICES

The four years following the launch of the Digital Health Vision saw a global pandemic, new conflicts, increasing climate shocks, and the growth of AI technologies in health—underscoring the rapidity with which the global health, geopolitical, and digital technology landscapes can change. During this time, USAID and other global health actors sought to distill good practices and capture insights from the implementation of digital technologies to meet the challenges posed by COVID-19[27] and other health needs.

These insights validate the importance of the four priorities outlined in the Digital Health Vision and illuminate opportunities to enrich that approach with practices that can strengthen USAID's digital health investments and activities to be strategic, integrated, and sustainable. To enhance the way USAID operationalizes these four priorities, this Digital Health position paper recommends six practices to guide USAID's investments and activities:

1 Commit to person-centered point-of-care digital systems.

Person-centered care[28] enables people seeking and providing health services to partner in care management. Digitally supported health systems can facilitate person-centered care by collecting, sharing, and providing access to integrated health information, such as made possible by a unique health identifier or shared health records system. Person-centered point-of-care digital systems are designed to meet the needs of people and providers and can support decision-making, service delivery, and coordination of care for all health programs. Many digital health tools used at the point of care, however, are designed primarily to meet health program monitoring and reporting needs. Wherever possible, USAID's health programs should invest resources in person-centered digital health tools and derive monitoring and reporting data secondarily from the data produced by person-centered point-of-care systems. This approach shifts the focus of primary data use from global health funders and health systems managers to individuals and health care workers. It can also lower the health workers' reporting burden.

2 Require standards to enable integrated health service delivery at scale.

USAID should require standards[29] in the country-facing digital systems it funds. The Digital Health Vision identifies standards as a central component of effective national digital health architectures capable of exchanging data and information at scale. This position paper further elevates the importance of standards. Standards[30] and identity systems also are critical to enabling integrated health service delivery supported by longitudinal records systems that move with patients across facilities and through time. Standards can support patient referrals, interoperability between patient records and pharmacy and laboratory systems, and better coordination of care. USAID should also invest resources in country advisory boards supporting the identification and uptake of health-sector data and information standards. This is an important and necessary part of the broader support USAID should provide to align to and strengthen a country's digital health architecture and enabling environment.[31]

3 Support country-led governance of health system digital transformation.

USAID should deepen its financial and technical support to country-led digital health governance, for example, through investments that directly support the Ministry of Health and related government offices, when appropriate. The Digital Health Vision identifies country governance as an important part of assessing and strengthening a country's digital health enabling environment. This position paper further elevates the importance of USAID investment in country digital health governance because it is a foundational and continuous need across a country's health system[32] and broader health sector digital transformation journey, such as measured by the Global Digital Health Monitor.[33] Country digital health governance is necessary to set a vision, develop plans, establish priorities, direct and sustain investments, ensure resiliency in digitally supported health systems, and maintain functionality during disruptions. Governance can help create certainty around market size and opportunities. It can enable multiple funders to partner with governments in developing financially sustainable models that enable digital technologies to succeed beyond donor-funded programs. Governance structures should be inclusive and representative; they should incorporate relevant public and private sector stakeholders to enable coordination and collaboration and promote equity. Furthermore, governing bodies play a key role in establishing data sharing and data use agreements that promote data sovereignty and governance, as well as policies and procedures needed to appropriately protect health information. USAID should participate in those governance structures where appropriate.

4 Strengthen data privacy, cybersecurity practices, and related country regulations.

USAID should ensure that the digital systems it funds provide robust data protection and cybersecurity,[34] including encrypted data protections and secure data storage. These measures are vital to protecting health data against increasing cyber threats, especially in conflict settings. USAID should also allocate sufficient resources to enable the technology partners it funds with programmatic investments to meet the legal, policy, regulatory, and technical requirements of the jurisdictions in which these digital tools are used. This may require revisiting program or project budgets, helping ensure that USAID funds privacy and cybersecurity protections in all appropriate cases. Finally, within the programmatically funded digital systems USAID supports, the agency should provide sufficient funding to enable regular software system maintenance and updates to improve their ongoing security.

In conjunction with this approach, USAID should deepen its support for countries' development and enforcement of policies and regulation regarding responsible data governance[35] (e.g., privacy, consent, minimization, access, and use) and cybersecurity[36] (e.g., digital literacy, cyber hygiene, country cybersecurity policies and strategies, and system vulnerability assessments[37]). Given the sensitivity of health data, USAID should support additional safeguards to protect vulnerable populations from harm,[38] including youth and groups targeted for their ethnic, sexual, or gender identities. Considering rapid developments in AI, USAID should work with countries and other development partners to strengthen and harmonize regulatory frameworks guiding safe, responsible, and effective health-sector uses of AI.

5 Deepen engagement with local[39] partners, including the private sector.

Global health funders including USAID should deepen investments in local ecosystems, including the local private sector, to support their ability to be effective long-term partners to ministries of health. Over 120 countries either have or are in the process of developing national digital health strategies.[40] These plans articulate a shared vision to which funders, the private sector, and other development partners can align efforts, including the establishment of telemedicine systems that reduce the need for travel to health facilities. Engagement with local academic and research institutions as well as with community-based organizations—particularly groups that reflect the perspectives of women and minority groups—can help USAID most effectively meet the health needs of those who are the intended beneficiaries of these global programs. Local partners can support local capacity-building, including enhancements for cybersecurity and data management; local engagement can sustain a range of activities, from research to implementation support and software development, including the use of open code bases.[41] This approach can lay the groundwork for shared infrastructure, increase the effectiveness and sustainability of digital solutions, contribute to the development of local ecosystems, and advance multisectoral interoperability initiatives that together can address social determinants of health.

6 Invest in shared resources that advance the global digital health commons.

The progress we see in digital health today is the result of nearly 30 years of investment in core infrastructure and common technologies, as well as continuous learning and adaptation. Open source software applications have grown to provide durable foundations for government public service delivery and private sector technology companies[42] alike. An increasingly robust suite of digital tools, including software global goods, is available for funders to draw on. Numerous initiatives that are open source, coalition building, research focused, knowledge sharing, and capacity building have aggregated expertise across technical domains and geographies, making these capabilities available for shared advancement. USAID should continue to draw from and, further, contribute to strengthening these commons and communities, including through investment in global coordination initiatives[43] and regional networks.[44] Finally, USAID should continue to contribute to shared research agendas that advance the global evidence base for digital health and encourage emerging technologies like generative AI to be grounded in evidence that supports safe, responsible, and effective use.

CONCLUSION

In a world characterized by complex global challenges—such as the emergence of novel diseases and the increasing impacts of climate change on health and health systems—it is critical that USAID position its health-sector digital investments to have the widest possible utility. The growing prevalence of data and information standards, as well as country digital health strategies and architecture, make it easier for Congressionally directed funds to be invested in ways that meet individual health program needs while strengthening overarching health systems. Such investments can contribute directly to country ownership and the sustainability of health-sector digital systems.

Adoption of these six practices is significant because they require USAID's individual health programs to consider how they leverage and contribute to digital systems whose benefits can extend beyond the needs of a single health program, often by supporting integrated health service delivery. These shifts also require USAID to examine how it deepens its technical expertise in health-sector digital transformation as this field grows.

To be effective, this desired transformation in USAID's external programming should be supported by an internal change management that may include updates to USAID policies and processes, tracking and coordination of USAID's health-sector digital investments, bolstered knowledge management, and the benchmarking and growth of the digital health technical expert capacity of the USAID workforce. When appropriately supported by internal change management, applying the practices of this position paper can unlock the full potential of digital transformation to give people more equitable (see Annex) access to the safe, secure, and reliable health information and services needed to promote well-being. In turn, healthier populations can help propel broader socioeconomic development, and stronger, digitally enabled health systems can foster global health security[45] and resilience in the face of growing health threats.

ANNEX:
Equity in Health-Sector Digital Transformation

As noted in the 2020–2025 WHO Global Strategy on Digital Health, access to connectivity, devices, and digital literacy are "digital determinants of health."[46] Yet many people around the globe still lack regular access to digital information and services. Over two-thirds of caregivers are women;[47] however, women are less likely than men to have their own phone or access the internet.[48] Billions of people, including remote populations, still live beyond reliable access to digital connectivity. Some populations, including youth,[49] may not be able or allowed to provide meaningful consent regarding how their digitally collected data may be used. Those with disabilities may need accessibility features or assistive technologies[50] to access digital tools and content. Addressing these disparities is crucial to making sure no one is left behind when it comes to health care coverage and outcomes.

Access to connectivity alone, however, is not a panacea for health. Risks such as inadequate authenticity,[51] cybersecurity, and privacy protections—or the inadequate implementation of these protections—can lead to inequities and direct harm. Health programs often collect sensitive information on individuals, which can expose certain populations to heightened risk, such as in countries that have anti-LGBTQI+ legislation. Many countries are passing data protection legislation that defines sensitive personal data, which can include health data; yet these protections may not be adequate to ensure data privacy and security. To address health inequities, intentional efforts are needed to promote inclusion and accessibility for all users and stakeholders while enforcing protective measures. Dedicated efforts are needed to advance connectivity,[52] promote gender equity,[53] design gender-intentional[54] digital architecture and digital public infrastructure,[55] promote youth engagement,[56] and reach marginalized populations (e.g., LGBTQI+ individuals). Supporting women's involvement[57] in country digital health leadership can help make digital transformation more equitable and representative, working toward more equitable health for all.

END NOTES

1. Classification of digital interventions, services and applications in health.
2. Digital Public Infrastructure.
3. Health Information Systems.
4. Digital Public Infrastructure.
5. Global Goods.
6. Understanding the relationship between digital public goods and global goods in the context of digital health.
7. Distinguishing digitization and digitalization: A systematic review and conceptual framework.
8. This Vision is not relevant to the following: general office use of information and communication technology systems (e.g., desktop computers); U.S. Government systems or USAID-managed software deployed behind USAID's firewall (e.g., the Global Acquisition and Assistance System); the use of digital tools by USAID's programs and partners to support their external communications (e.g., websites) 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); direct-to-consumer digital solutions, unless they connect to a country's health system; or small-scale, exploratory pilots to prototype new technologies.
9. Strengthening Country Digital Health Capacity.
10. A Vision for Action in Digital Health.
11. The USAID Digital Health Position builds on the USAID Artificial Intelligence Action Plan, Climate Strategy, Education Policy, Equity Action Plan, Gender Equality and Women's Empowerment Policy, Geospatial Strategy, LGBTQI+ Inclusive Development Policy, Localization Policy, Mental Health Position, One Health Position, Private Sector Engagement Policy, Resilience Policy, and Youth in Development Policy. It is also rooted in USAID policies pertaining to privacy (ADS 508), system security (ADS 545), and data (ADS 579), which provide critical guidance for USAID staff. This position paper also is grounded in USAID co-created and endorsed principles including the Principles for Digital Development and Principles of Donor Alignment for Digital Health (Digital Investment Principles).
12. USAID Digital Policy 2024–2034.
13. A digital transformation for primary health care.
14. Digital Ecosystem Framework. In the global health sector, the digital "ecosystem" is referred to as the "enabling environment," comprising digital health infrastructure, leadership and governance, strategy and investment, legislation and policy compliance, workforce, standards and interoperability, and services and applications.
15. The USAID Program Cycle.
16. Localization.
17. What is Locally Led Development?
18. Celebrating 60 Years of Progress.
19. As noted in the USAID Digital Policy: "In low- and middle-income countries, 785 million women do not have access to mobile internet; 60 percent of those women live in South Asia and Sub-Saharan Africa, where men are 30 percent more likely to use the internet than women." (p5)
20. Fighting Ebola with Information. (p9)
21. The USAID Digital Policy 2024–2029 recommends an infrastructural approach to digital systems investments: "Instead of developing software to address a single issue, an infrastructural approach emphasizes investing in common shared resources, which serve multiple goals over the long term. Taking this approach enables USAID to move beyond sectoral silos and invest in hardware, software, systems, and policy frameworks that support multiple solutions and competition, which improves a digital ecosystem holistically and, by extension, our development impact. To ensure sustainability, USAID should prioritize investments that use open standards, enable interoperability, and encourage scaling and reuse (for example, investing in digital public goods when appropriate)." (p20)
22. Global Repository on National Digital Health Strategies.
23. A Vision for Action in Digital Health.
24. Health Data Governance Principles.

25. Cybersecurity Briefer: Global Health.
26. Fighting Ebola with Information.
27. Building Resilience During Emergencies: Exploring how COVID-19 Digital Health and Data Use Investments Can Strengthen Health Systems.
28. Person-Centered Care.
29. Common examples of open standards that countries use to represent their health data include Health Level 7 (HL7(R)) Fast Healthcare Interoperability Resources (FHIR(R)), International Statistical Classification of Diseases and Related Health Problems (ICD) 10th revision or 11th revision, and Logical Observation Identifiers Names and Codes (LOINC(R)).
30. Data standards are used to represent structured concepts, such as vocabularies, terminology, code sets, and more that provide a foundation for interoperability and ensure common understanding among information users. Exchange standards enable disparate systems and organizations to access, share, integrate, and use data while maintaining the meaning of the health information.
31. Strengthening Country Digital Health Capacity: Note 1.
32. USAID Vision for Health System Strengthening 2030.
33. Tools such as the Global Digital Health Monitor can help benchmark a country's digital transformation of its health sector and highlight both strengths to leverage and weaknesses to address. The monitor also can serve as a useful tool for countries and their development partners to track a country's digital transformation progress.
34. The USAID Digital Policy notes: "USAID will support the data protection and cyber resilience of partners—including governments, civil society, media, and others—through safeguarding measures, training, rights-based cybersecurity, protection of critical infrastructure, and risk mitigation. By helping to protect the digital systems of our partners, we promote their rights and prosperity while also strengthening U.S. national security." (p14) USAID Digital Policy 2024–2034.
35. Health Data Governance Principles.
36. United States International Cyberspace & Digital Policy Strategy.
37. Cybersecurity Primer.
38. Do No Harm.
39. Localization.
40. Global Strategy on Digital Health 2020–2025.
41. Global Goods Guidebook Version 4.0.
42. Top Ten Open Source Technologies and Why You Must Master Them.
43. For example, the Global Digital Health Partnership and the WHO-hosted Global Alliance on Artificial Intelligence and Global Initiative on Digital Health.
44. For example, AEHIN, HELINA, PHIN, RECAINSA, RELACSIS.
45. Release of 2024 U.S. Global Health Security Strategy.
46. Global Strategy on Digital Health 2020-2025. p15
47. The Lancet Commission on Women and Health revealed that the real economic value of women's paid and unpaid contributions to the global health sector is almost five percent of global GDP, which was equivalent to more than $4.2 trillion in 2018. About half of this unpaid work is caregiving. Overall, over 70% of global caregiving hours are provided by women and girls." https://www.weforum.org/agenda/2020/04/covid-19-highlights-how-caregiving-fuels-gender-inequality/
48. The Gender Digital Divide Primer.
49. Policy guidance on AI for children.
50. Assistive Technology.
51. Global Digital Health Certification Network.
52. Digital Invest.
53. Women in the Digital Economy Fund.
54. Gender-Intentional Digital Health Intervention and Enablers: A Rapid Guide for Analysis, Planning, and Monitoring.
55. Digital public infrastructure—blessing or curse for women and girls.
56. Centering Your Perspectives in the Digital Health Agenda.
57. African Women in Digital Health.

PHOTO CREDITS

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- **Right:** USAID/CHISU, Alemitu Assefa, Ethiopia

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