DIGITAL STRATEGY
2020–2024

USAID
FROM THE AMERICAN PEOPLE

Photos on cover, (clockwise): d.light; Jack Gordon, USAID; Riaz Jahanpour, USAID

ADMINISTRATOR'S MESSAGE

Today, many of us take for granted our access to digital technology like smartphones and the Internet. They have become an integral part of our day-to-day lives and increasingly our default way of communicating, learning, and doing business.

We should remember, however, that four billion people in developing countries still do not have access to the Internet, including a staggering 93 percent of households in the least-developed nations. Further exacerbating the situation, the gender digital divide continues to grow. Women are, on average, 14 percent less likely to own mobile phones than their male counterparts, and 43 percent less likely to engage online.

Digital technology's profound potential is tempered by the looming threats posed by authoritarian governments and malevolent actors who use digital tools to suppress political dissent and other individual freedoms while also limiting competition in the marketplace. Across these two, at times incongruent, digital worlds, we must be steadfast in ensuring we do not leave behind the poor and marginalized.

I am pleased to share with you the first *U.S. Agency for International Development (USAID) Digital Strategy*, an Agency-wide vision for the responsible use of digital technology in development and humanitarian work.

Building on decades of leadership in digital development, the *Strategy* outlines USAID's deliberate and holistic commitment to strengthen open, inclusive, and secure digital ecosystems in each country in which we work. These digital ecosystems are transforming how people worldwide gain access to information, goods, services, and opportunities; in today's world, a country cannot achieve self-reliance without them.

The field of international development is not immune to the digital changes around us, and, as the premier development donor, we at USAID have a responsibility—to U.S. taxpayers, to the communities we serve, and to ourselves—to meet the challenges and seize the opportunities of the digital age. This is central to USAID's mission to end the need for foreign assistance, but we cannot do it alone. We ask our partners and colleagues around the world to engage with us.

I am confident that, through collaboration, ingenuity, shared values, and collective experience, the future of our digital world will be bright for all.

Ambassador Mark Andrew Green
USAID Administrator

ACKNOWLEDGEMENTS

The USAID *Digital Strategy* is the result of significant contributions from across USAID and our partner community, including implementing organizations, governments, donors, civil society and the private sector. The *Strategy* would not have been possible without the dedicated leadership and support of Harry Bader, Acting Executive Director for the U.S. Global Development Lab, and Gloria Steele, Acting Assistant Administrator of the Bureau for Asia. The *Strategy* benefited from the guidance of Christopher Burns, the Director for the Center for Digital Development in the U.S. Global Development Lab, and was the product of contributions made by over 130 colleagues from 19 bureaus and independent offices and 25 missions, who participated in the *Strategy*'s development as members of the Working Group and Advisory Group. The *Strategy* was written by a Drafting Team, led by Aubra Anthony (U.S. Global Development Lab), with drafters from multiple bureaus: Adam Kaplan and Amy Malessa in the Bureau for Democracy, Conflict, and Humanitarian Assistance; Paul Fekete in the Bureau for Economic Growth, Education, and Environment; Adele Waugaman in the Bureau for Global Health; Irena Sargsyan from the Bureau for Policy, Planning, and Learning; and John O'Bryan in the U.S. Global Development Lab.

CONTENTS

Photo: Riaz Jahanpour, USAID

EXECUTIVE SUMMARY

Countries around the world are in the midst of a historic digital transition. The rapid development and adoption of digital technology are transforming industries, governments, economies, and societies. Digital ecosystems—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—hold immense potential to help people live freer, healthier, more prosperous lives. These ecosystems can help drive economic empowerment and financial inclusion, advance national security, support accountability and transparency in governance, introduce new and innovative health solutions, and make development and humanitarian assistance more efficient and effective.

Digital transformation comes with the risk of increasing inequality, repression, and instability. Malign actors capture digital infrastructure to advance divisive messaging, crime, and illicit finance. Despite the global prevalence of mobile phones and the Internet, the reality in many communities does not yet reflect the potential of a digital ecosystem that drives sustainable and equitable growth. Vulnerable or marginalized groups often find themselves excluded from the digital ecosystem because of inadequate infrastructure or a lack of affordable or relevant products, services, and content; or because political, social, environmental, or economic factors inhibit equitable uptake.

DIGITAL TECHNOLOGY

In this *Strategy*, we use the term "digital technology" not only to describe a type of technology but also to refer to the platforms, processes, and range of technologies that underpin modern information and communications technologies (ICT), including the Internet and mobile-phone platforms, as well as advanced data infrastructure and analytic approaches.

Now more than ever, as the global development community works to deliver life-saving assistance and relay crucial information in the face of the pandemic of COVID-19, the role of digital technology is undeniable. Teachers deliver lessons remotely to homebound classes; health care workers diagnose patients via telemedicine to minimize their risk of exposure; and people worldwide seek out online information about the pandemic's impact on their lives and livelihoods. Across all of these activities, digital technology is what allows us to remain connected even while physical distancing requires us to be apart. It is more important than ever for USAID to help communities be resilient in the face of threats like this global pandemic, by ensuring all countries have robust digital ecosystems that are open, inclusive, secure, and of benefit to all.

In light of this, *The U.S. Agency for International Development (USAID) Digital Strategy (2020-2024)* will position the Agency to advance our mission—to end the need for foreign assistance—through digitally supported programming that fosters the Journey to Self-Reliance in our partner countries and maximizes the benefits, while managing the risks that digital technology introduces into the lives of the communities we serve.

GOAL OF THE USAID *DIGITAL STRATEGY*: To achieve and sustain open, secure, and inclusive digital ecosystems that contribute to broad-based, measurable development and humanitarian-assistance outcomes and increase self-reliance in emerging market countries.

The *Digital Strategy* centers around two core, mutually reinforcing objectives:

- Improve measurable development and humanitarian assistance outcomes through the responsible use of digital technology in USAID's programming; and
- Strengthen the openness, inclusiveness, and security of country-level digital ecosystems.

DIGITAL ECOSYSTEM

A "digital ecosystem" comprises 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. See Annex III: Glossary for examples of the critical components of a digital ecosystem.

These objectives, and USAID's approach to achieving them, support the goals and principles outlined in key policy documents, including the *USAID Policy Framework*; the *Department of State-USAID Joint Strategic Plan*; and the *U.S. National Cyber, National Security,* and *Counterterrorism Strategies*.

USAID will work to improve the efficiency and effectiveness of foreign assistance through the consistent and responsible use of digital technology in our development and humanitarian programming. Through our programmatic investments, USAID will work to strengthen the critical components of digital ecosystems that enable sustainable growth in a digital age: a sound enabling environment and policy commitment; robust and resilient digital infrastructure; capable digital service providers and workforce; and, ultimately, empowered end-users of digitally enabled services.

As we become a more responsive, field-oriented Agency that fosters self-reliance around the globe, USAID must consider the capacities and commitment in the countries where we work in order to capitalize on the opportunities and address the risks inherent in digital systems. USAID's investments in country-level digital infrastructure and systems must lead to sustainable ownership and management by local governments, citizens, and the private sector. Where capacity is lacking, we can build our partners' technical capabilities to oversee these systems and responsibly leverage the data they produce to inform their own decisions. Where commitment is low, USAID can empower and equip civil society and the private sector to navigate complex and rapidly evolving digital ecosystems and hold governments accountable. **For communities to achieve self-reliance in the digital age, open, inclusive, and secure digital ecosystems that preserve and protect the rights and agency of individuals are critical.** The proper use, understanding, and application of technology is a development imperative.

USAID will take a multipronged approach, implemented under the leadership and authorities granted to various Operating Units (OUs) within the Agency to achieve the objectives of the *Digital Strategy*. Close consultation and collaboration with governments, civil society, the private sector, and local communities in countries where we work will guide this approach. We will work to develop the tools and resources necessary to provide effective development and humanitarian assistance in a digital age; we will build capacity to better navigate the unique opportunities and risks that digital technology presents across USAID's Program Cycle; we will accelerate the transition to a default position of leveraging digital technology responsibly and appropriately in our programming; and we will invest in our significant human capital to continue to build the USAID of tomorrow.

USAID will work with U.S. Government interagency partners and coordinate with interagency initiatives to implement the objectives of the *Digital Strategy*; address challenges and capitalize on opportunities in countries in which we work; and maximize positive outcomes across development, humanitarian, security, health, and human-rights efforts.

Implementation of the *Digital Strategy* will start in a subset of target countries and extend to all USAID OUs over its five-year span. The launch of the *Digital Strategy* will shepherd the creation of a Digital Learning Agenda to promote collaborative exploration of the highest-impact pathways for inclusive, sustainable growth of digital ecosystems. Following the *Strategy*'s launch, USAID will release dedicated guidance and training materials to support our Missions and Bureaus throughout implementation, as well as a Monitoring and Evaluation Plan that will enable us to evaluate the *Strategy*'s impact over the next five years to ensure continual learning and adaptation in a rapidly evolving digital age.

The USAID Digital Strategy *is a development policy document focused on the promotion of secure, open, and inclusive country-level digital ecosystems and the programmatic use of digital technology in the Agency's development and humanitarian assistance, which we commonly refer to as "digital development." While the* Digital Strategy *primarily focuses on enhancing USAID's programmatic activities, the partnership and leadership of USAID's operational components are crucial to executing the* Strategy*, including the Bureau for Management (*e.g.*, the Office of the Chief Information Officer [M/CIO] and the Office of Acquisition and Assistance [M/OAA]); the Office of Human Capital and Talent Management (HCTM); and the Office of the General Counsel (GC).*

This Strategy *is a complement to the authorities and responsibilities of these operational entities, and the Agency's Regional and Pillar Bureaus will execute it in partnership with them. The implementation of the* Strategy *will be consistent with all applicable laws, including, but not limited to, the Clinger-Cohen Act of 1996, Electronic Government (eGov) Act of 2002/The Federal Information Security Management Act (FISMA) of 2002, the Federal Information Security Modernization Act of 2014, the Federal Information Technology Acquisition Reform Act of 2015, the Foundations for Evidence-Based Policymaking Act (Evidence Act), and the Grants Oversight and New Efficiency Act.*

Photo: KC Nwakalor, USAID

DEVELOPMENT IN A DIGITAL AGE

The world has changed dramatically since USAID's founding in 1961, and the pace of change is accelerating. Digital technology increasingly pervades daily life. In recent years, the proliferation of digital technology has transformed the ways in which the world's economies, governments, and people interact and engage with one another.[1] Many experts say that we are now on the cusp of a Fourth Industrial Revolution,[2] which will touch every industry and upend existing business models, including those that were disrupted just a few years earlier.

Community leaders engage their constituents via popular mobile messaging platforms. Utilities operate and secure power grids and other infrastructure with networked computers and sensors. Transformative technologies such as artificial intelligence (AI) offer tremendous potential to better tailor goods and services to meet individual needs. Blockchain-backed start-ups work to tackle intractable problems like corruption, lack of transparency, and unique identification for a global citizenry. Some small- and medium-sized enterprises (SMEs) and motivated entrepreneurs are becoming micro-multinationals by opening up their shops and skill sets to online global markets and the burgeoning "gig economy."[a]

Whereas mobile phones and the Internet were once limited to wealthy countries, the rapid diffusion of digital technology holds the promise of a new digitally enabled global society, with the potential to spur economic growth, improve development outcomes, transform health delivery, lift millions out of poverty, and ultimately move us closer to ending the need for foreign assistance. For example, expanding the availability of fast Internet in Africa has increased employment levels and average income, especially for high-skilled jobs and workers.[3] When properly deployed and regulated, advanced communications networks enable "smart city" applications that could mitigate the negative effects of urban population growth, improve the management of natural resources, and increase agricultural productivity.[4]

However, these same systems can have undesirable consequences when not developed with respect for the individual rights of users. Authoritarian governments and malign actors can wield digital tools to suppress political dissent, quash individual freedoms, limit competition in the marketplace, or take advantage of individuals who lack digital literacy. On the grounds of analytical support, social engagement, or civil protection, regimes can deploy digital tools as instruments of intimidation, surveillance, theft, and control—effectively silencing, rather than amplifying, critical voices.[5] Digital technology has increased the risks young people, women, and religious and ethnic minorities face, through the creation of new platforms that enable bullying, hate speech, sexual abuse, exploitation, victimization, recruitment into trafficking, and radicalization to violence. Additionally, digitally augmented programming that ignores geographic or gender disparities in the access to, or use of, mobile phones, or whose algorithms fail to correct for bias, could end up failing the most vulnerable or marginalized populations.[6]

How society evolves in the digital age does not depend only on new technology and innovation, but on non-digital building blocks that make up the digital ecosystem—elements such as domestic and international regulatory environments, political economy, institutional capacity, and individuals' skills, protections, and agency. While digital ecosystems can, and should, evolve according to market forces, donors such as USAID can help ensure digital ecosystems serve all citizens, especially the most marginalized and vulnerable. American values of inclusion, freedom, and accountability must guide our digital investments. Our role should be to foster a locally owned approach, adapt our approaches to local conditions where necessary and appropriate,[b] and ensure the foundational ecosystem components and necessary guardrails are in place to guarantee that digital technology benefits and protects all citizens.

a. The "gig economy" is a system in which individuals or organizations engage independent workers on short-term assignments, often via online platforms, such as Amazon Mechanical Turk, TaskRabbit, Uber, *etc.*

b. In certain cases, a desired local approach could run counter to established U.S. policies, like those on cross-border flows of data and data-localization. USAID-funded projects should not support the adoption of digital development schemes that run counter to established U.S. trade and national-security policies.

USAID'S VISION

The vision of the* USAID Digital Strategy *is to advance progress in communities in our partner countries on their Journeys to Self-Reliance through efficient, effective, and responsible digital initiatives that enhance security and economic prosperity, consistent with the American values of respect for individual rights, freedom of expression, and the promotion of democratic norms and practices.

USAID will work toward two mutually reinforcing strategic objectives:

- Improve measurable development and humanitarian-assistance outcomes through the responsible use of digital technology in our programming; and
- Strengthen the openness, inclusiveness,[c] and security of country digital ecosystems.

The strategic use of digital technology in USAID's programming not only should help us achieve our development and humanitarian-assistance outcomes but also strengthen the critical components of the digital ecosystem that help us achieve our own goals and empower all individuals to achieve their own aspirations. USAID's digital interventions must go beyond the activity level and, when possible, address the systemic gaps and market failures in digital technology that make the need for donor interventions a persistent reality.

The *Digital Strategy* supports the 2018–2022 *State-USAID Joint Strategic Plan* that calls on the U.S. Department of State and USAID to "[t]ransition nations from assistance recipients to enduring diplomatic, economic, and security partners" (Strategic Objective 3.1).[8] As USAID looks forward to the day when foreign assistance is no longer necessary, we must understand the potential for digital technology to accelerate or undermine the Journey to Self-Reliance.

TWO MUTUALLY REINFORCING OBJECTIVES

Strong digital ecosystems enable better development programming across sectors, which, in turn, can drive improvements in digital ecosystems. For example, in the Kingdom of Cambodia, USAID's Development Innovations project helped connect civil society and the technology community to design and use digital solutions to address development challenges. These tech-enabled solutions reached 1.6 million Cambodians and improved government accountability; the protection of natural resources; education; health care; and the preparedness for, and response to, disasters. The project cultivated a diverse community of Cambodian innovators who can design and build technology products to address their own development challenges. By focusing not only on the digital solutions but also on advancing opportunities in technology and entrepreneurship for local innovators, youth, and women, the project has built a pipeline of small businesses that will continue to strengthen and shape Cambodia's digital ecosystem.[7]

c. Access, affordability, and adoption are the three principle drivers of digital inclusion. Inclusive digital ecosystems describe systems in which digital infrastructure, technology, and services are not only equally accessible and available to everyone, but that are also affordable to all members of society and designed to account for the cultural, contextual, and other barriers (*e.g.*, gender, language, disabilities, education, *etc.*) that must be overcome in order to become a regular user of the Internet.

THE DIGITAL JOURNEY TO SELF-RELIANCE

A country's commitment and capacity to respond to the unique opportunities and challenges posed by the digital age depends upon the ability to become self-reliant. In alignment with existing U.S. policies and frameworks,[9] and in cooperation with the U.S. Government interagency, USAID plays an integral role in supporting governments, civil society, the private sector, and local communities along their digital Journeys to Self-Reliance.

USAID must help to strengthen the security and resilience of digital ecosystems in our partner countries, which increasingly will serve as the foundation of open, accountable, and citizen-responsive governance; inclusive development; and economic growth. USAID must provide opportunities to train the workforce of tomorrow in our partner countries and build digital literacy among individuals in the developing world.

USAID recognizes that fostering self-reliance in the digital age means working with all actors in a local system, which includes foreign firms and non-governmental organizations (NGOs). Additionally, fostering self-reliance in digital ecosystems means building productive linkages that reach beyond national borders. These cross-border linkages can strengthen the local environment for self-reliance by speeding and spreading innovation; creating access to new markets via digital platforms; and fostering a more secure, trustworthy online environment. Indeed, digital issues often transcend national boundaries. Digital businesses operate in international markets, cyber threats cross borders with ease, and nations depend on a global network of fiber-optic cables. Each country's Journey to Self-Reliance is linked to a digital ecosystem that is part of a regional or global whole and will benefit from an open, interoperable, secure, and reliable cyberspace.

ADVANCING U.S. NATIONAL SECURITY AND ECONOMIC PROSPERITY

As stated in the *U.S. National Security Strategy*, "America's response to the challenges and opportunities of the cyber era will determine our future prosperity and security."[18] While the economy of the United States becomes increasingly dependent on digital technology, and as Americans rely more heavily on a secure cyberspace, investments in the development of robust, resilient, and secure digital economies become even more crucial to our national security and economic prosperity. Thus, one of the pillars of the *U.S. National Cyber Strategy* is to "promote an open, interoperable, reliable, and secure Internet," and to build the cyber capacity of our allies and partners.[19]

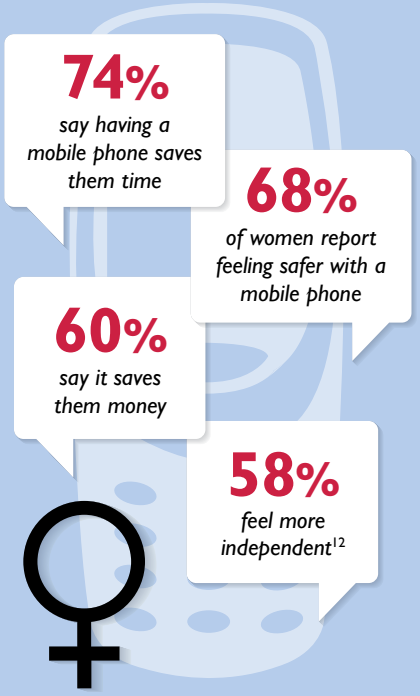
THE FOLLOWING ARE EXAMPLES OF HOW DIGITAL TECHNOLOGY CAN PROMOTE SELF-RELIANCE:

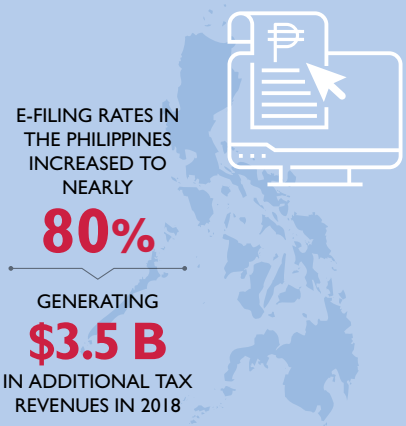
OPEN AND ACCOUNTABLE GOVERNANCE

In Ukraine, the pilot of the USAID-funded e-procurement platform, ProZorro, **helped the national government cut costs by 12 percent** (which amounted to $1.4 billion by 2018).[10] Perceived corruption decreased from 59 percent to 29 percent from 2016–2017, and the percentage of suppliers who are small and medium-sized enterprises (SMEs) went from 24 to 80 percent from 2015 to 2018.[11]

INCLUSIVE DEVELOPMENT

WOMEN IN LOW- AND MIDDLE-INCOME COUNTRIES SAY:





ECONOMIC POLICY

In the Republic of The Philippines, USAID supported the digital transformation of tax administration, which increased e-filing rates from less than eight percent in 2013 to nearly **80 percent** in 2019. This assistance helped the Government of The Philippines generate **$3.5 billion** in additional tax revenues in 2018.

The *USAID Digital Strategy* will help the Agency advance U.S. national security and economic prosperity. In support of the U.S. Government's goals to advance our national security and economic prosperity, USAID will work with governments and the private sector in the countries where we work to promote informed investments in the development of communications infrastructure and digital markets, because networks intrinsically present greater cybersecurity and supply-chain risks as they increase in scale. This is especially urgent as countries increase their Internet connectivity by shifting from 3G and 4G (third-/fourth-generation) to 5G (fifth-generation) communications networks.[20] Authoritarian governments' subsidies to their national champions or state-owned enterprises allows these firms to offer fiber-optic networks and network equipment, including technology used to monitor populations on a mass scale and to restrict citizens' access to information, on (often deceptively) favorable financial terms. Such malign practices enable authoritarian regimes to dominate the telecommunications industry and control digital tools that can increase censorship and repression—to the disadvantage of the United States, our allies, and our values, which include democracy, market economy, inclusion, rights, freedom, and accountability.

THE DIGITAL CONNECTIVITY AND CYBERSECURITY PARTNERSHIP (DCCP)

In support of the U.S. Government's cybersecurity priorities, Secretary of State Mike Pompeo launched the DCCP in July 2018, a whole-of-Government initiative to promote access to an open, interoperable, reliable, and secure Internet to counter authoritarian influences on communications infrastructure. The DCCP Interagency Working Group, which USAID and the U.S. Department of State co-chair, supports the development of open communications infrastructure through private-sector engagement; promotes transparent regulatory policies for free, competitive markets; and builds partners' cybersecurity capacities to address shared threats. DCCP will help the governments and the private sector in our partner countries realize the tremendous economic and social benefits of the digital economy, while creating new commercial opportunities for U.S. and local technology companies.

THE FOLLOWING ARE EXAMPLES OF HOW DIGITAL TECHNOLOGY CAN PROMOTE SELF-RELIANCE:

USE OF DIGITAL PAYMENTS SAVES THE MEXICAN GOVERMENT

$1.27 B

— EACH YEAR —

GOVERNMENT CAPACITY

The Better Than Cash Alliance reports that **the Mexican Government saves $1.27 billion each year** through the use of digital payments.[13]

CITIZEN CAPACITY

Thanks to digital tools like mobile money, communities have greater access to financial services and are more stable and self-reliant. In the Republic of Kenya, the mobile-money system M-PESA has lifted **194,000 households,** or two percent of Kenyan households, **out of poverty**.[14]

USE OF MOBILE MONEY SYSTEM IN KENYA LIFTED

194K

HOUSEHOLDS OUT OF POVERTY

CAPACITY OF THE ECONOMY

By increasing the adoption of mobile phones and fully enabling digital financial services, the Gross Domestic Product (GDP) of emerging economies could increase by more than **$3.5 trillion**, or six percent, by 2025.[15] E-commerce could **increase international trade by up to $2.1 trillion** by 2030.[16]

IN INDONESIA, VOLUNTEERS QUICKLY **BUILT A WEBSITE AND DIGITIZED VOTING TABULATIONS** TO MONITOR/TRACK CONTESTED ELECTION RESULT

CIVIL SOCIETY CAPACITY

Digital technology enables civil society to hold government and service-delivery providers accountable. Following the highly contested 2014 presidential election in the Republic of Indonesia, a group of volunteers quickly built a website and digitized voting tabulations, many of them handwritten, to enable better monitoring and tracking of the election results and address accusations of vote-rigging.[17]

REALIZING BENEFITS: DIGITAL AS AN ENABLING FORCE FOR DEVELOPMENT

Digital technology is transforming the way people gain access to information, goods, and services, which paves the way for improved health, well-being, and livelihoods. Digital technology has enhanced development outcomes and advanced national self-reliance in several ways.

Photo: Adam Parr, USAID


Photo: USAID

MAKING DEVELOPMENT MORE EFFECTIVE AND EFFICIENT

- **Strengthening government service-delivery systems.** During the 2014–2016 Ebola crisis in West Africa, USAID funded a mobile phone-based system to disseminate information from the Liberian Ministry of Health to frontline health workers[21] and helped streamline salary payments to health workers by using mobile money.[22] In the Republic of Sierra Leone, digitized payments have contributed to saving an estimated 2,000 lives by ensuring community-response workers received their salaries.[23]
- **Saving time and cutting costs.** Digital technologies can improve delivery in a range of sectors, including health, humanitarian assistance, and education, to help allocate scarce resources where they are needed most. For example, using a smartphone-based application called eNutrition, health workers in the United Republic of Tanzania tailored treatment to children with severe acute malnutrition based on the child's past weight, past treatment, and guideline targets. Calculations and guidelines for each child's case helped virtually eliminate errors, which previously had been as high as 45 percent, within the first three months.[24]
- **Prioritizing investments through geospatial analysis.** In the Republic of Uganda, the creation and analysis of geospatial data supported USAID's Saving Mothers Giving Life program. In just eight weeks, USAID-trained university students digitally mapped the entire transportation network of three Districts in Western Uganda. These mapping data helped model physical accessibility to health care in the region and prioritize the allocation of new facilities. As a result of the improved allocation, maternal mortality in the area declined by at least 30 percent.[25] In the Philippines, USAID's Biodiversity and Watersheds Improved for Stronger Economy and Ecosystem Resilience (B+WISER) program harnessed technology alongside a geographic, data-driven approach to support the national government's effort to improve the management of natural and environmental resources and mitigate deforestation.[d, 26]

DRIVING ECONOMIC EMPOWERMENT, FINANCIAL INCLUSION, AND TRADE

- **IMPROVING RESILIENCE THROUGH DIGITAL FINANCIAL SERVICES.** Digital financial services can make transactions cheaper, more accessible, more secure, and more transparent, and help the poor weather financial shocks to lead more resilient lives.[27] Families who do not use M-Pesa in

d. The Government of the Philippines has adopted and scaled up the technology with its own resources.

Kenya—the largest mobile-money system in the world—suffer a seven-percent drop in consumption when hit with a negative income shock, while the consumption of families who use M-Pesa remains unaffected.[28]

- **Increasing economic activity and reducing barriers to international trade by using digital systems.** The Ethiopian Commodity Exchange (ECX) is an online platform that provides real-time prices on agricultural products over SMS, telephone hotlines, a website, and traditional media channels. It offers smallholder farmers a fair opportunity to participate in international markets. Improved knowledge about coffee prices reduced traders' margins by almost half, which meant farmers saw increased revenue.[29] Similarly, the USAID-funded Regional Trade and Market Alliance (RTMA) worked with customs and other border-control agencies in Central America to reengineer trade processes to eliminate downtime and improve coordination. This reengineering process was critical to support the implementation of radio-frequency-identification (RFID) tags at two main border crossings.[30]

SUPPORTING ACCOUNTABILITY AND TRANSPARENCY IN GOVERNANCE

- **Reducing waste and fraud in the distribution of public benefits.** A trial of smartcard-enabled benefit payments in the Republic of India found that the leakage of funds decreased by 40 percent, and demands for bribes were 47 percent lower for card-users than for those in the control group.[32] Overall, the reductions in leakage for the program were an estimated $38.7 million per year—nine times the cost of implementation.[33]
- **Strengthening land-tenure systems.** USAID's Mobile Applications to Secure Tenure (MAST) initiative has combined innovative technology tools with inclusive, community-based methods to document and formalize the use of land and empower youth.[34] MAST maps and documents land tenure in a number of countries, trains local youth to collect and validate land data as empowered "intermediaries," and is a part of ongoing randomized control trials in the Republic of Zambia and Tanzania. The source code for MAST's mobile applications and back-end database systems are free and open-source, so the technology is available for the broadest possible adaptation and use.

STRENGTHENING THE ECOSYSTEM FOR DIGITAL PAYMENTS IN THE PHILIPPINES

USAID worked with the *Bangko Sentral ng Pilipinas* (Central Bank of the Republic of the Philippines) and the country's financial sector to improve the efficiency, reliability, safety, and interoperability of the system for retail payments and strengthen the national ecosystem for digital payments. This support has played an important role in the country's journey to a cash-lite economy. A recent study by the Better Than Cash Alliance found that the Philippines has made significant progress, as the share of digital payments increased from one percent in 2013 to 11 percent in 2018. This translates to a 20-fold increase in the volume of transactions, from a monthly average of 25 million in 2013 to 490 million in 2018. In terms of value, digital-payment transactions quadrupled from a monthly average of $6 billion in 2013 to $24 billion in 2018. [31]

Photo: B+Wiser

Photo: USAID

CREATING A PLATFORM FOR INNOVATION AND INCLUSION

- **Providing the economic infrastructure for innovative businesses to offer services to underserved communities.** The combination of inexpensive solar panels and mobile-money platforms is enabling pay-as-you go business models for off-grid energy.[35] One company, M-Kopa, powers 300,000 homes in Kenya, Tanzania, and Uganda. This technology not only delivers electricity, but also broadens the reach of digital services for savings, credit, and payments.[36]
- **Creating new opportunities for persons with disabilities.** Digital reading platforms allow for accessible audio and visual supplements. Since 2011, the USAID-funded All Children Reading: A Grand Challenge for Development has used open competitions to create and scale technological solutions to improve the literacy skills of early-grade learners in developing countries.[37] Its Sign On for Literacy prize targets the estimated 25 million deaf children around the world who lack access to education.[38] In 2019, the Kenya-based prize finalist, *eKitabu*, translated Kenyan Sign Language (KSL) into a visual glossary, produced KSL videos for integration into accessible books, and created visual storybooks to introduce KSL to early-grade readers.
- **Empowering youth to drive change in their communities.** Young entrepreneurs and youth leaders are using digital innovation to help solve development challenges at home and abroad. Across the globe, more than 5,000 student mappers in more than 150 university chapters are generating open-source geospatial data for humanitarian and development use through YouthMappers. The USAID-funded program creates geospatial data for our programs that need them most, while strategically empowering youth to define their world by mapping it.

DELIVERING INFORMATION AND ACTIONABLE INSIGHTS

- **Enabling access to data.** In the Islamic Republic of Pakistan, a country plagued by chronic electricity shortages, USAID installed 9,000 smart meters, which used the country's mobile network to relay electricity-usage data back to the utility's headquarters every 15 seconds. With increased access to data, the distribution company provided better electricity service to more than 120 million people, increased its revenue by $62 million, and reduced losses to the economy by an estimated $180 million.[39]
- **Aiding in the formulation of strategies and the design and implementation of projects and activities by using powerful emerging approaches like machine learning (ML) and artificial intelligence (AI).** In the Republic of Colombia, efforts to increase the crop yields of smallholder farmers have used ML approaches to make recommendations based on historical yield data and updated climate models.[40] For efforts to expand access to electricity, computer vision algorithms can map electric grids by picking out electric towers and power lines from satellite images.[41] Similar approaches can map road networks to identify underserved regions.[42]

ACCOUNTING FOR RISKS: A NEED FOR SAFEGUARDING IN DIGITAL ECOSYSTEMS

The emergence and adoption of digital technology leads to a multitude of benefits, but it also introduces risks. In an increasingly digital world, communities can find themselves socially or economically marginalized if they choose, for reasons of tradition or cultural preservation, not to opt in to the changing society around them. For those who do opt in, online forms of harassment can exacerbate existing inequalities and conflict dynamics. If left unaddressed, these vulnerabilities can lead to extensive political, social, and economic damage and, ultimately, derail a country's Journey to Self-Reliance.

THE PERSISTENT DIGITAL DIVIDE

Multiple, stubborn digital divides exist between those who have access to digital products and services and those who do not—between urban and rural communities, indigenous and non-indigenous populations, young and old, male and female, and persons with or without disabilities. These divides are not isolated to the poorest countries, and frequently persist even when national-level access improves. Closing these divides wherever they exist is key to achieving USAID's goals.

Private-sector investments in digital infrastructure often exclude areas and populations for which the business case cannot be readily justified or the risk is too burdensome. Marginalized populations might require public investment to aggregate demand, lower the cost of market entry, and extend connectivity to previously unreached areas—a role USAID is well-positioned to play through the use of our funds, flexible authorities, partnerships with technology companies, and technical expertise to mitigate risk and to "crowd in" public and private resources.

WOMENCONNECT CHALLENGE: BRIDGING THE GENDER DIGITAL DIVIDE

Around 1.7 billion women in low- and middle-income countries do not own mobile phones, and the gap in using the Internet between men and women has grown in recent years.[43] In 2018, USAID launched the WomenConnect Challenge to address this gap. With a goal to enable women's and girls' access to, and use of, digital technologies, the first call for solutions brought in more than 530 ideas from 89 countries; USAID selected nine organizations to receive $100,000 awards. In the Republic of Mozambique, the development-finance institution GAPI is lowering barriers to women's mobile access by providing offline Internet browsing, rent-to-own options, and tailored training in micro-entrepreneurship for women by region. Another awardee, AFCHIX, creates opportunities for rural women in the Republics of Kenya, Namibia, and Sénégal and the Kingdom of Morocco to become network engineers and build their own community networks or Internet services. The entrepreneurial and empowerment program helps women establish their own companies, provides important community services, and positions these individuals as role models.

Photo: Securing Water for Food

At the same time, emerging technologies can pose new challenges to inclusion. Because AI-enabled tools often rely on machine-learning algorithms that use historical data to detect patterns and make predictions, they can reproduce or amplify biases that might be present in those data.[44] The February 2019 *Executive Order on Maintaining American Leadership in Artificial Intelligence* states, "The United States must foster public trust and confidence in Artificial Intelligence (AI) technologies and protect civil liberties, privacy, and American values in their application."[45] Similarly, the Principles on Artificial Intelligence endorsed by the Organisation for Economic Cooperation and Development (OECD), adopted by 42 countries including the United States, stress the importance of human rights and diversity, as well as building safeguards and accountability when designing systems that rely on AI.[46] We must balance the adoption of new technologies with a measured assessment of their ethical, fair, and inclusive use in development.[47]

Similarly, one billion people in the world, mostly from developing countries, lack appropriate means of identification (ID),[48] which creates a divide between those who can prove their identity and those who cannot, and excludes large groups from civic participation and access to public services. As we move into a world with increasingly present digital ID systems, we run the risk of further excluding people if these systems are not carefully designed and deployed. Host-country governments or USAID partners must not adopt tools that exacerbate existing inequities, which would harm already-marginalized people and undermine trust in the organizations that deploy these tools, and instead ensure that digital systems and tools equitably benefit affected populations.

Photo: Jim Haylebroek, USAID

THREATS TO INTERNET FREEDOM AND HUMAN RIGHTS

As articulated in the *U.S. National Cyber Strategy*, 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.[49] For many people across the globe, reality does not reflect this ideal state. According to Freedom House, the global state of Internet freedom in 2019 declined for the ninth consecutive year, which presents challenges to democracy worldwide.[50] These threats are not new, but they are taking on new forms in a digital age.

One major threat to digital ecosystems is what some have termed *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.[51] Authoritarian governments also threaten freedom of expression and movement by encouraging the design and use of online systems for surveillance and social control—for example, by promoting and adopting digital facial-recognition systems that enable the passive identification of citizens and visitors.[52] The rise of digital authoritarianism is especially concerning during times of complex emergencies, when lack of access to information can hinder the delivery of humanitarian assistance. Consistent with our Clear Choice Framework and Development Framework for Countering Malign Kremlin Influence, USAID will continue to champion Internet freedom by driving multi-stakeholder conversations related to Internet governance and supporting commitment to Internet freedom and human rights around the globe.

USAID'S PARTNER ORGANIZATIONS COUNTER ONLINE HATE SPEECH

Experience from USAID's programs suggests that media literacy alone is not sufficient to address the volume of hate speech circulated on online platforms. Beginning in 2015, USAID has funded partners in Southeast Asia to reduce the impact of hate speech on underlying community tensions, which can ultimately lead to riots, forcible displacement, and death. USAID's partner organizations produce and distribute messages to raise awareness about hate speech, both locally and with relevant authorities on global platforms. Our implementers also work closely with local leaders to build their awareness of hate speech and tailor online and offline interventions to community dynamics. USAID's experience indicates no one is better-positioned than local organizations to demand independent audits publicly and apply the pressure necessary to hold platforms accountable to the ideals of transparency and accuracy of information.

Photo: Gerhard Jörén, World Bank

HATE SPEECH AND VIOLENT EXTREMISM ONLINE

The same digital tools that allow governments, businesses, and civil society to connect efficiently and at scale enable individuals and organizations with hateful or violent ideologies to reach potential followers and recruits. The United States is clear in our commitment to exposing violent extremism online and working with local partners and technology platforms to communicate alternatives.[53] This includes implementing programs to counter violent extremism that are focused, tailored, and measurable, as articulated in the USAID Policy on Countering Violent Extremism in Development,[54] and an explicit call to understand how to counter violent extremism and hate speech through digital platforms.[55]

THE INFLUENCE OF ONLINE MISINFORMATION AND DISINFORMATION ON DEMOCRATIC PROCESSES

Recent events have shown the ability of misinformation and disinformation campaigns to sow distrust and undermine democracy.[56] Particularly during periods of political transition, *misinformation* can create as much harm as *disinformation*.[e]

Furthermore, the push to correct misinformation is often a thinly veiled cover for the disinformation efforts of authoritarian or would-be authoritarian governments. As USAID-funded programs work to increase the digital influence of local partners, the Agency must prepare staff and partners to anticipate and respond to coordinated disinformation campaigns against their work.

Both state and non-state actors are adopting efforts to pollute the information available on the Internet. In addition to traditional methods (for example, using fake accounts and websites to spread divisive messages), these actors can buy followers, employ networks of automated bots, manipulate search engines, and adopt other tactics used by counterfeiters to confuse and persuade. Furthermore, technologies that enable "deep fakes" not only can deepen societal divisions, shape public perceptions, and create "false facts" and "truths," but also lead to actual conflict and lend significant advantages to violent non-state adversaries.[57] USAID and our interagency U.S. Government partners are committed to coordinating efforts to counter misinformation and disinformation generated by state and non-state actors[58] and funding supply- and demand-side interventions to reach those ends.[59]

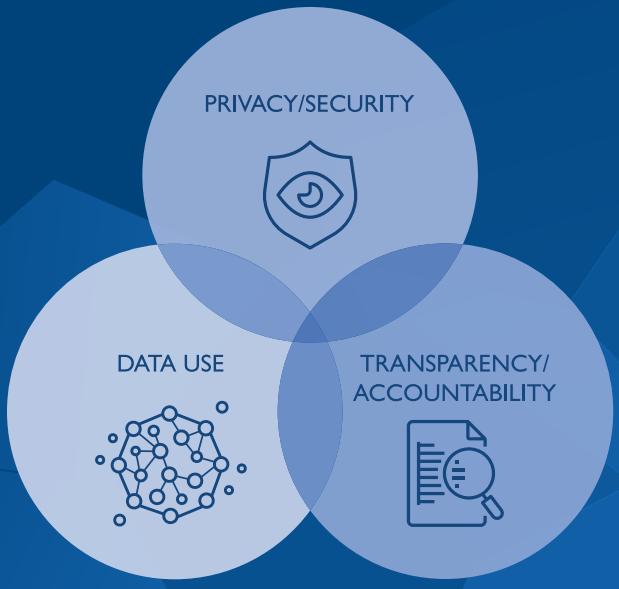
e. Misinformation refers to factually inaccurate content distributed regardless of whether there is an intent to deceive, while disinformation refers to factually inaccurate content distributed intentionally for political, economic, or other gain.

NEW RISKS TO PRIVACY AND SECURITY

Digital-information systems increase the availability of data and the ease of its storage and transfer, which breaks down the "transaction costs" that have historically served as *de facto* protections of data privacy.[60] This increased ease of access compels us to reassess how we conceptualize privacy protections in a digital age. As many communities USAID and its partners serve come online for the first time, we must provide resources to, and help develop the capabilities of, partners to enhance the safeguarding of personally identifiable information (PII) and other sensitive information. Even datasets scrubbed of PII might, when merged and analyzed together, expose individuals to reidentification.[61] Additionally, it is now possible to discern sensitive information, such as someone's political leanings or sexual orientation, simply through tracking his or her online behavior or mobile devices.[62] As it becomes easier to create a "mosaic" of someone's identity from disparate pieces of digital data, norms and definitions of privacy are proving anything but static.

Privacy risks are particularly acute in humanitarian crises, where displacement and uncertainty increase vulnerability, and recipients of aid can feel pressured to share personal data in exchange for urgent assistance. Threats to privacy can come from nefarious actors who engage in "doxing"[63] and digital intimidation, but they can also come from unwittingly harmful actors—groups who might not have proper security protocols in place, for example. Conversations related to the responsible protection and use of data cannot be separated from conversations related to the benefits of open data for transparency and the flow of information for international trade.

Cybersecurity risks can jeopardize a country's infrastructure and services at a national level. Ukraine experienced the first known cyber attack on a power grid in December 2015, when 225,000 people lost power.[64] The country experienced another cyberattack in June 2017, which affected computer systems, automated teller machines (ATMs), an airport, and even the radiation-monitoring system at the Chernobyl nuclear plant, before



CONSIDERATIONS FOR USING DATA RESPONSIBLY AT USAID

The responsible use of data requires balancing three key factors, which can sometimes be in tension, as detailed in *Considerations for Using Data Responsibly* at USAID. The **use of data** helps maximize the effectiveness and efficiency of our programs. **Privacy and security** help avoid unintentional harm to both the subjects of data (people described by data) and the stewards of data (organizations that collect, store, and analyze data). **Transparency and accountability** require sharing data as broadly as possible with host-country governments, U.S. taxpayers, and the people directly affected by our work. Effectively navigating these complex issues is critical to maintaining trust in digital systems and creating opportunities for beneficial innovation.

spreading worldwide.[65] In 2016, hackers stole $81 million from Bangladesh's central bank by infiltrating its computer systems and using the SWIFT payment network to initiate the transfer.[66]

These examples demonstrate the potential economic impact and damage to trust in public institutions because of cybersecurity failures. Much like terrorist attacks, high-profile cyber attacks can undermine the legitimacy of governments by highlighting their inability to protect their citizens from harm.

In a digital ecosystem, the frontlines of defense against cyber threats and data breaches (and often the most vulnerable points) are a country's workforce: engineers, bank managers, government officials, or development practitioners. Because of the critical role the workforce plays in maintaining cybersecurity and recovering from cyber attacks, it needs adequate digital skills and training; the right processes, policies, or systems; and an appropriately protective legal and regulatory environment.

In support of the Journey to Self-Reliance, USAID, in partnership with other U.S. Government Agencies and Departments, plays an important role in building the cyber capacity of partner-country governments and industry; promoting regulations and laws that protect privacy and freedom of expression; uniting industry, government, and educational institutions to develop a highly qualified cybersecurity workforce; and increasing the digital literacy and digital security of citizens.

The 2018–2022 *State-USAID Joint Strategic Plan* mandates international cooperation to "secure an open, interoperable, reliable, and stable cyberspace and strengthen the capacity of the United States and partner nations to detect, deter, rapidly mitigate, and respond to international cyber threats and incidents."[67]

Photo: Graham Crouch, World Bank

ACCOUNTING FOR PROMISE AND PERIL IN A DIGITAL AGE

Every country has its own trajectory: some societies are rapidly embracing digital change, while others are just beginning the process. In spite of differences in maturity of digital ecosystems, digital technology presents a range of benefits and risks for which USAID's programs universally should account.

TABLE 1: ILLUSTRATIVE BENEFITS AND RISKS THAT DIGITAL TECHNOLOGY MAY INTRODUCE ACROSS SECTORS

ILLUSTRATIVE BUILDING BLOCKS OF SELF-RELIANCE	ILLUSTRATIVE BENEFITS DIGITAL CAN PROVIDE	ILLUSTRATIVE RISKS DIGITAL CAN POSE IF UNACCOUNTED FOR	ILLUSTRATIVE ROLES FOR USAID AND PARTNERS
SERVICE-DELIVERY 	Networked digital information systems allow people, including the underserved or unserved, to more **easily access information**—for instance, financial services, advice on health, market prices, climate and weather information, job openings, or natural-resource management and agricultural best practices. Privacy-protecting approaches can build trust and safeguard individual rights.	Technology companies and authoritarian governments have increasing access to intimate details of people's lives because of **inadequate privacy protections**.[68]	Understand the local digital ecosystem and support the digital strategies of local governments; build the digital literacy of individuals. Support the implementation of effective digital privacy and cybersecurity best practices to strike a balance between driving increased use of open data-sharing and safeguarding personal information.
ECONOMIC GROWTH 	Digital connectivity correlates with higher rates of **economic growth**, and accounts for roughly 14 percent of growth in low- and middle-income countries from 1995-2014.[69] Digital financial services, such as mobile payments, digital banking, and new lending products, have shown a measurable effect in **lifting people out of poverty**.[70]	A persistent **digital divide can undermine inclusive economic growth** by excluding marginalized communities or accelerating market concentration and economic inequality. Likewise, under certain conditions, firms that offer digital services built on network effects, large flows of data, and economies of scale might use those drivers to undermine competition, innovation, and consumer protection.[71]	Work with local stakeholders, including the business community, to identify drivers of exclusion, whether at the policy, infrastructure, services, or end-user level; and identify factors that constrain the private sector from involvement and investment in addressing drivers of exclusion. Facilitate the development of an enabling environment and marketplace of firms and entrepreneurs that promote competition, responsible conduct, and human-centered approaches to innovation.
DEMOCRACY, HUMAN RIGHTS, AND GOVERNANCE 	Digital technology has the potential to democratize the flow of data and **enhance the ability of governments to respond to citizens' needs efficiently and effectively.** Use of online platforms and partnerships like the Open Government Partnership (OGP) and International Aid Transparency Initiative (IATI), can help to hold governments accountable to their citizens through transparency reforms.	Both state and non-state actors have sought to **undermine democracy** and poison online discussions and social-media platforms through sophisticated deception and disinformation.[72] Authoritarian regimes use digital technology to monitor, harass, and threaten ethnic and religious minorities and individuals and organizations that seek transparency and accountability or challenge a government's narrative.	Support human-rights organizations and independent media through access to secure data and communications platforms, digital-literacy programs, equipment, and state-of-the-art technical assistance in protecting themselves, their families, and their work from cyber attacks and disinformation.

Photos, top to bottom: David Rochkind, USAID; Brooke Patterson, USAID; Nick Cunard, Department for International Development

ILLUSTRATIVE BUILDING BLOCKS OF SELF-RELIANCE	ILLUSTRATIVE BENEFITS DIGITAL CAN PROVIDE	ILLUSTRATIVE RISKS DIGITAL CAN POSE IF UNACCOUNTED FOR	ILLUSTRATIVE ROLES FOR USAID AND PARTNERS
HUMANITARIAN ASSISTANCE 	Digital data sources, such as social media[73] and mobile phone records[74] can be a valuable source of **real-time information** as a crisis unfolds. In humanitarian crises, mobile money transfers can sometimes be faster, more secure, and more transparent than distributing cash.[75]	Humanitarian agencies in Yemen used biometric registration of aid recipients to support monitoring and accountability. However, **disagreements over data control and ownership** led to a suspension of food aid to more than 12 million people.[76]	Explore innovative methods to target and deliver humanitarian assistance more effectively and responsibly using digital tools. Promote responsible use of social media and outreach to affected communities and diaspora. Promote discussion with international stakeholders on how to best protect the privacy and identity of vulnerable populations, including internally displaced people and refugees.
NATIONAL SECURITY 	Deployment of digital infrastructure that **prioritizes national security,** while also promoting U.S. values of an open, secure, reliable, and interoperable Internet, free expression, and free markets, will determine economic growth and security at home and for our partners and allies.[77]	**Cybersecurity breaches** can destabilize critical networks and sectors, **disrupting a country's Journey to Self-Reliance.** Violent extremists have employed digital applications—from social media and file-sharing to cryptocurrencies—to radicalize and recruit, as well as to **promote, coordinate, and fund acts of terror**.[78]	Strengthen the capacity of partner governments to secure their data systems against attacks and make informed policy and infrastructure choices. Work with the private sector in key industries (e.g., finance, energy, health) to improve capacity to strengthen cybersecurity and preserve trust in digitally-enabled services and counter cyber-related threats to economic growth.
PRIVATE SECTOR AND TRADE 	**Digitally-enabled trade**, such as through e-commerce platforms or more-efficient customs processes, is one of the fastest-growing areas in the global economy.[79] Digital technology can reduce the cost and time needed for common business operations.	Many governments choose to adopt **protectionist digital trade policies** (e.g., data-localization, forced transfer of technology, the use of standards that favor domestic industry, and failure to enforce intellectual-property rights). These policies, when combined with **inefficient cross-border trade processes and paper-based systems**, impair trade that contributes to economic growth.	Build private-sector capacity to adopt digital-first business models and comply with globally recognized standards for the conduct of cross-border trade through e-commerce. Work with governments to apply digital tools to streamline regulations and processes that facilitate trade. Strengthen partners' capacities to participate in the development of international regulation related to the digital economy, and to comply with future commitments.
ACCESS TO INFORMATION 	Digital technologies can increase access to information in a way that can yield powerful insights for citizens and government stakeholders alike.	Digital technology can create echo chambers in which dissenting views are marginalized, as well as perpetuate rumors or other unintentional falsehoods.	Build capacity of local media to provide fact-based reporting online and counter disinformation efforts. Build the digital literacy of all communities.

Photos, top to bottom: Jack Gordon, USAID; Arne Hoel, World Bank; USAID; R. Farrell, ITU

Photo: Nicolas Bertrand, World Bank

WHY DIGITAL REQUIRES US TO REFINE OUR APPROACH TO DEVELOPMENT

USAID needs to revisit how we respond to development challenges in the face of dynamic and rapidly growing digital ecosystems. Both the rate of change and complexity in the evolution of digital ecosystems are unprecedented. Yet institutional structures and processes of both governments and development organizations have been slow to adapt, and often struggle to keep up. As a result, **institutions often lack the capacity to design, implement, and monitor projects and activities effectively that engage with, or use, the digital ecosystem**. The proliferation and adoption of emerging technologies will amplify these challenges, which frequently outpace our ability to explore appropriate safeguards and enact right-sized policies that promote healthy innovation while protecting against misuse or harm.

The staff of both USAID and our partners must receive training to understand the appropriate use of digital tools for development programming, and the importance of coordinating with the U.S. Government interagency to assess a recipient nation's economic and security posture to use and manage digital solutions appropriately. Otherwise, digitally enabled programming will be less effective, and our efforts to reinforce digital ecosystems will be inadequate.

Even if the staff and personnel of our international partners have the skills and capacity to use technology and data to redesign development projects and activities, the norms and incentives that shape their decisions and actions often make it difficult for them to do so. For example, because development and humanitarian-assistance projects and activities traditionally depend on funding tied to a sector, they often only invest in a sliver of the needed digital infrastructure, if at all—though that need not be the case.[80] An inventory-management system might work the same way, whether it tracks school books or medications delivered or agricultural inputs. But rather than investing in one system, donors will often (wastefully) build separate systems, because different teams manage the projects.

Even when USAID and our partners create digital systems separately, we can, and should, build them to interoperate, with the ability for data-sharing and communication where appropriate. Lack of interoperability undermines sustainability and growth, burdens partners, and can stifle competition. For example, the lack of interoperable health-data systems during the 2014–2016 epidemic of Ebola in West Africa forced decision-makers to compare information manually from separate databases, which slowed the response.[81] In other countries, lack of interoperability has limited the scale of digital payments.[82]

If our digital programmatic investments are siloed or unsustainable, we risk undermining the digital ecosystems we should be trying to build, and ultimately the people and countries with whom we work. Not only is this an inefficient use of taxpayer funds, it will ultimately obstruct longer-term efforts toward self-reliance. We must continue to strive toward a values-driven, principled approach to digital development that encourages the responsible, equitable, and sustainable use of digital technology in development and humanitarian-assistance programming.

THE PRINCIPLES FOR DIGITAL DEVELOPMENT

In 2013, USAID, along with a group of donor and multilateral organizations, co-drafted the Principles for Digital Development,[83] nine areas of best practice in the application of digital technologies to global development. The Principles articulate guidance to help address challenges such as pilots that fail to scale, or do not involve sufficient engagement with the target users. USAID became the first organization to endorse the Principles officially in 2015, and the Agency continues to promote them today.[84] More than 200 organizations have now endorsed the Principles, including the Bill and Melinda Gates Foundation, the World Bank Group, the Swedish International Development Cooperation Agency (Sida), the German Society for International Cooperation (GIZ), and the Department for International Development (DFID) of the United Kingdom.

Principles *for* Digital Development

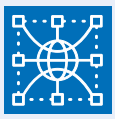
GUIDING PRACTICES

Before we describe what USAID will aim to accomplish under this *Strategy* and the types of interventions we will use to realize those results, we must first reinforce our commitment to values-driven programming. Throughout our work, USAID's approach will embody a set of guiding practices that will not only help our digitally supported programming efforts stay on-target and be most effective, but also provide guidance on when and how to engage in a country-level digital ecosystem, consistent with U.S. values and in a way that protects civil liberties and preserves human rights.

Embed U.S. Values, Civil Liberties, and Universal Human Rights. "[The U.S. Government's] approach to cyberspace is anchored by enduring American values, such as the belief in the power of individual liberty, free expression, free markets, and privacy."[85] Because authoritarians can use digital technologies as tools of surveillance, discrimination, or social control, USAID will take care to support only digital systems and policies that promote the freedoms of expression and action, equal opportunity, and self-determination, values and rights enshrined in the U.S. Constitution's Bill of Rights[86] and in the Universal Declaration of Human Rights.[87]

Collaborate with the Private Sector. In alignment with the Agency's *Private-Sector Engagement Policy*, USAID will work with the private sector to build long-lasting, equitable digital infrastructure while lowering risk for investors. USAID will also promote innovations led by the private sector that reduce costs for end-users and support access by local technology entrepreneurs to regional and global markets.

Foster the Adoption of Globally Recognized Standards. USAID will work with stakeholders to foster their alignment with, and application of, globally recognized standards and best practices related to the digital ecosystem (for example, on interoperability, competition, and cross-border flows of data[f]). Such standards and practices can increase investment in, and the growth of, local digital ecosystems and improve the quality of services available to communities.



Support In-Country Alignment. USAID will strive to align with, and strengthen, the national or sectoral digital priorities of partner-country governments in ways consistent with U.S. law and best practices.[g] In circumstances in which doing so is practical, and appropriate privacy and cybersecurity protections are in place, Missions should encourage data systems funded by USAID to link with national systems, and the Agency should seek opportunities to coordinate our investments with those of other donors and private firms. USAID must oppose digital integration in instances in which digital technology and data become unwitting tools of repression, and our Missions must be attuned to the influence of malign actors on the policies and procurements of national governments.[88] Given the important role of regional alliances and regional integration, USAID will also collaborate to shape conducive regional environments for digital ecosystems, knit together by cross-border flows of data, the harmonization of policy frameworks, and use of globally recognized standards.

Strengthen Local Systems, Institutions, and Capacity. In line with the *USAID Policy Framework*, which highlights sustaining results as a key principle that underpins our approach to fostering self-reliance, USAID recognizes that local systems and institutions help to deliver lasting results. USAID will strengthen local workforce-development efforts, promote digital literacy and hygiene, improve access to digital tools and services, and reinforce privacy protections.[89]

f. Given the consensus view that data flows present singular challenges and opportunities, multiple organizations have developed principles, guidelines, frameworks, or white papers to inform policymakers and other stakeholders on how to navigate this environment safely. See, for example, CSIS, "Data Governance Principles for the Global Digital Economy," (2019), https://www.csis.org/analysis/data-governance-principles-global-digital-economy; CIGI, "Data Is Different: Why the World Needs a New Approach to Governing Cross-border Data Flows," (2018), https://www.cigionline.org/publications/data-different-why-world-needs-new-approach-governing-cross-border-data-flows; USTR, "The Digital 2 Dozen," (n/d), https://ustr.gov/trade-agreements/free-trade-agreements/trans-pacific-partnership/tpp-reports/digital-2-dozen.

g. See, for example, the Principles of Donor Alignment for Digital Health, https://digitalinvestmentprinciples.org/

Promote Inclusive Digital Development. USAID recognizes that digital ecosystems are stronger and more sustainable when they work for everyone. Underlying our efforts to strengthen digital ecosystems is a commitment to understand and address the root causes of exclusion or under-participation by particular groups. USAID will invest in improving digital ecosystems in ways that meet the needs of all segments of society, in particular traditionally underserved groups such as the poor, women, youth, ethnic and religious minorities, and people with disabilities.

Meet Communities Where They Are along the Journey to Self-Reliance. Rather than imposing an inflexible set of global goals, USAID's aim is to help communities in each partner country progress on their unique Journey to Self-Reliance.[90] This means USAID will demonstrate sensitivity to local political, economic, and social context and adapt engagements based on the opportunities and risks presented by any given digital ecosystem. As capacity and commitment reach more advanced levels, we will consider adjusting the nature of our partnerships with governments, civil society, the private sector, and local communities in host countries on issues of digital development.

Strengthen Cybersecurity. In alignment with U.S. Government cyber policy, USAID will promote an open, interoperable, reliable, and secure Internet that strengthens and extends U.S. values and protects and promotes cybersecurity for our beneficiaries. This will entail supporting the adoption of policies that espouse global cybersecurity best practices; facilitating the protection of Internet freedom; promoting the principles of the free flow of data and the protection of intellectual property; and prioritizing the development of a cyber-ready workforce in the countries in which USAID works.

Protect Privacy and Use Data Responsibly. USAID will encourage the governments, civil society, and the private sector in our partner countries and local stakeholders to protect and use data responsibly, by consistently striving for all data assets to have appropriate safeguards and to be high-quality, standardized, and machine-readable. As our programs rely increasingly on digital tools and the personal data they generate, USAID will elevate the need for the privacy and protection of programmatic data. We will work with our partners and national governments to navigate the complex ethical and legal issues that will arise.

Take Calculated Risks and Embrace Innovation. A key element of our ability to sustain results is to take balanced risks and manage them comprehensively. USAID's Risk-Appetite Statement calls on the Agency to be bold, to work with different partners, and to innovate around novel procurement systems;[91] this is particularly relevant to investments in digital ecosystems. The rapidly evolving digital landscape requires a high appetite for risk when "harnessing new technologies and innovations" in USAID's development and humanitarian assistance,[92] with a commitment to understand and minimize avoidable risks as we promote innovation. Simultaneously, the rights, protections, and safety of our beneficiaries and recipients must always be our foremost priority, so our appetite for risk is low when the security of information, such as PII, is threatened.[93]

WHEN *NOT* TO GO DIGITAL

While technology can improve many development and humanitarian projects, it is not a panacea. For example, in some cases (such as relief for natural disasters), damage to digital infrastructure can disrupt connectivity and make low-tech tools more reliable. Data about some extremely vulnerable populations could be too sensitive to store digitally, or even to collect, regardless of the security measures employed. Deployment of some digital tools also might be unwise in countries with repressive and digitally sophisticated governments that can subvert or disrupt systems more easily than our partners can protect them. These and other "non-permissive digital environments" require careful consideration of when, and whether, to use digital methods.

Photo: Colby Gottert, USAID

STRATEGIC FRAMEWORK: FOSTERING AN INCLUSIVE DIGITAL FUTURE

By working to pioneer new approaches and learn from both success and failure, USAID can help governments, civil society, the private sector, and local communities in our partner countries maximize the potential of the digital transformation and minimize its risks. USAID itself will continue to pursue similar transformation, by leveraging digital technology to further programmatic gains. We will continue to advance the use of digital technology to address the operational needs of the Agency, as governed by our *Information Technology Strategic Plan* (ITSP). Collectively, these activities will enable us to achieve the *Strategy*'s goal.

GOAL OF THE *DIGITAL STRATEGY*: To achieve and sustain open, secure, and inclusive digital ecosystems that contribute to measurable development and humanitarian-assistance outcomes and increase self-reliance in our partner countries.

USAID is but one actor among many that influence the global digital ecosystem; achieving this goal requires a multi-faceted, systems-oriented approach.[94] Two core, interrelated issues—*how* we use digital technology and the context in which we use it—are key to achieving this *Digital Strategy*'s two objectives:

- **Strategic Objective 1: Improve measurable development and humanitarian-assistance outcomes through the responsible use of digital technology in USAID's programming; and**
- **Strategic Objective 2: Strengthen the openness, security, and inclusiveness of national digital ecosystems.**

We recognize that how USAID works with stakeholders across the ecosystem can shape the evolution of a stronger, more open, and more inclusive digital future. Because of this, our strategic framework not only rests on the work USAID will carry out with our implementing partners, but also highlights the critical need for USAID to work in partnership with civil society, governments, the private sector, and other development actors as we aim for inclusive, sustainable growth of the global digital ecosystem.

In keeping with a systems-oriented approach, the Agency will achieve the Strategic Objectives of this *Strategy* through a set of mutually reinforcing Intermediate Results (IRs) that align with unique stakeholder roles, detailed both below and in Annex I. Many activities will lead to gains under multiple IRs. Illustrative targets appear following the Results Framework.

STRATEGIC OBJECTIVE 1

STRATEGIC OBJECTIVE 1: Improve measurable development and humanitarian-assistance outcomes through the responsible use of digital technology in USAID's programming

RATIONALE

The rapid evolution of digital ecosystems presents USAID with opportunities to leverage digital technology, and the data this technology produces, in our programming. The effective and responsible use of digital technology requires strategic planning, analysis of the implications that the digital age poses for key development challenges, and sustained engagement with a broad cross-section of stakeholders. USAID will position itself to make responsible programming decisions that, in turn, promote the sustainable, healthy growth of national digital ecosystems.

USAID has already begun to systematize digital approaches within Agency-funded projects and activities. These include guidance for electronic payments under USAID's awards,[95] updates to operational policy that promote a systematic method for collecting geolocation data,[96] a Self-Reliance metric for the Adoption of Information and Communications Technology (ICT) and other secondary data and analyses, and USAID's leadership in the co-creation of the Principles for Digital Development. To maximize the impact of taxpayer dollars, USAID will strive to further optimize our policies and procurement processes for the digital age, so that USAID-funded programming uses systems designed for interoperability, reusability, and sustainability across sectors.

MEASURING DIGITAL DIMENSIONS OF THE JOURNEY TO SELF-RELIANCE

As the Agency charts countries' economic capacities through relevant metrics of self-reliance, the ICT Adoption metric will help USAID's OUs recognize strengths, weaknesses, challenges, and opportunities related to the penetration of ICT in their host countries. The ICT Adoption indicator is a key measure of economic capacity and, when combined with secondary data and Mission-level analyses, can serve as an entry point to understand the adoption and integration of ICT.

USAID also has built the capacity of our staff to use digital technology in USAID's programming effectively. Since 2010, the U.S. Global Development Lab (Lab) has trained more than 2,300 USAID staff and partners, and has conducted more than 705 engagements with 80 USAID Operating Units (*e.g.*, direct technical assistance, strategic consultations, and advanced data and geographic analysis). The Lab also supports a network of Mission-based Digital Development Advisors and Specialists in Geographic Information Systems (GIS). Similarly, the USAID Data-Services team in the Office of the Chief Information Officer in the Bureau for Management (M/CIO) provides leadership on Agency-wide data policy, standards, and usage across the full data lifecycle. The team offers a broad portfolio of data analytics, curation, visualization, risk analysis and mitigation, machine-learning, and data-literacy services designed to promote the usage of evidence in support of USAID's mission. Digital expertise, technical assistance, and trainings like those offered by the Lab and M/CIO, as well as the U.S. Government interagency, will extend to the whole Agency; we must continue to equip our staff with modern digital tools for development and enable them to cultivate the necessary project-management skills to design and oversee programming in a digital age.

STRATEGIC OBJECTIVE 2

STRATEGIC OBJECTIVE 2: Strengthen the openness, inclusiveness, and security of country digital ecosystems

RATIONALE

USAID remains committed to investing in programming that strengthens the critical components that enable an open, inclusive, and secure digital ecosystem to flourish: sound enabling environment and policy commitment; robust and resilient digital infrastructure; capable digital service-providers and workforce (*e.g.*, both public and private institutions); and empowered end-users of digitally enabled services. This programming will enable the digital ecosystem to be a more equitable, participatory, and effective conduit for achieving measurable, sustainable development outcomes. USAID will likewise work to clarify how we can support ecosystem-oriented programming through the appropriate use of legislatively directed or sector-specific funding.

USAID has extensive experience with programming that strengthens the key components of digital ecosystems, including improvements to sector-specific digital systems, investments in digital global goods, legal frameworks, national strategies, and in-country capacities. Through the implementation of this *Digital Strategy*, USAID will continue to invest in these components and coordinate with the U.S. Government interagency, while recognizing that our approach must depend on a rigorous understanding of the gaps, dynamics, and opportunities presented by each national context. Country-level digital ecosystem assessments will complement our understanding of how a country's technological readiness can inform strategies, programming, and partnerships to help foster self-reliance.

GLOBAL GOODS

"Global goods" are generally described as any tool that is non-rivalrous, meaning use by one actor does not reduce the utility of the tool for use by another actor, and that is available for use by any actor. In the context of digital development, global goods are adaptable to different contexts, funded by multiple sources, and implemented by a large number of parties, and, in the case of software, interoperable across commonly used systems. They are often, but not always, open-source; however, "open-source" does not always mean "free of cost" or "free of intellectual-property rights."

Digital ecosystems are strongest when all players are free to exercise choice and agency in a balanced way.[97] Governments and civil society rely on private companies to build and operate complex digital infrastructure. Government then plays a critical role in regulating the delivery of digital services; protecting the interests of consumers; ensuring local higher-education institutions can strengthen digital skill-building and literacy; and addressing market failures to promote equitable opportunity for innovation and access to, and the use of, digital technology. Citizens rely on the public and private sectors to offer fair access to digital technology, the Internet, and digital information. Donors such as USAID can help foster robust digital ecosystems by strengthening local capacity, promoting policy reform, catalyzing the market, investing in digital global goods, and mitigating risks that hinder sustainable investment.

TABLE 2: RESULTS FRAMEWORK FOR THE USAID DIGITAL STRATEGY

VISION

Advance progress in communities in our partner countries on their journeys to Self-Reliance through efficient, effective, and responsible digital initiatives that enhance security and economic prosperity, consistent with the American values of respect for individual rights, freedom of expression, and the promotion of democratic norms and practices.

GOAL

To achieve and sustain open, secure, and inclusive digital ecosystems that contribute to measurable development and humanitarian-assistance outcomes and increase self-reliance in our partner countries.

SO 1: Improve measurable development and humanitarian-assistance outcomes through the responsible use of digital technology in USAID's programming		**SO 2:** Strengthen the openness, security, and inclusiveness of national digital ecosystems		
IR 1: Secure and appropriate use of digital technology across USAID's programming improves measurable development and humanitarian-assistance outcomes	**IR 2:** USAID's partners use effective approaches to engage with the digital ecosystem responsibly	**IR 3:** Communities in partner countries adopt, and have the capacity to securely use, and contribute to, digital ecosystems for improved services, economic opportunities, and civic engagement	**IR 4:** Improved commitment and capacity in partner countries foster digital ecosystems that align with established global best practices	**IR 5:** Digital economies led by the private sector are competitive, innovative, responsible, and inclusive
Sub-IR 1.1: Insights from assessments of digital ecosystems and advanced data analysis used across USAID's Program Cycle (to inform strategic planning and design)	**Sub-IR 2.1:** USAID's partners demonstrate digital awareness and alignment with established digital best practices	**Sub-IR 3.1:** Vulnerable or underserved groups are capable of using, contributing to, and benefiting from digital ecosystems	**Sub-IR 4.1:** Internationally established digital best practices implemented by public institutions and the private sector	**Sub-IR 5.1:** Private-sector investments in digital infrastructure and services align with internationally established best practices
Sub-IR 1.2: Established digital best practices integrated into Missions' strategies, programming, monitoring, and evaluation	**Sub-IR 2.2:** Exchanges of information between USAID and its partners expand established digital best practices	**Sub-IR 3.2:** The secure and responsible use of digital ecosystems increases the effectiveness of civil society and the media, including organizations led by women, youth, people from religious and ethnic minorities, and Indigenous Peoples	**Sub-IR 4.2:** Enabling environment for digital ecosystems improved through collaboration between USAID, governments, the private sector, and civil society; malign influences in digital ecosystems countered	**Sub-IR 5.2:** Private-sector skills, incentives, and capabilities contribute to development and promote inclusive and responsible service-delivery in the digital economy
Sub-IR 1.3: Missions make cross-sectoral investments in components of the digital ecosystem, such as infrastructure, services, policies, organizational commitment, *etc.*	**Sub-IR 2.3:** Multi-stakeholder engagements improve alignment with, or reform, the digital strategies, policies, and systems of partner governments	**Sub-IR 3.3:** Individuals and micro, small, and medium-sized enterprises (MSMEs) engage with the digital ecosystem to gain access to markets, information, and finance	**Sub-IR 4.3:** Policy-makers and regulators engage with, and provide responsible oversight of, digital ecosystems	**Sub-IR 5.3:** Local innovators, especially women, youth, ethnic and religious minorities, and Indigenous Peoples, participate in the digital economy
Sub-IR 1.4: Agency staff demonstrate awareness of, and competence and capabilities in, digital development				

ILLUSTRATIVE TARGETS (2020–2024)[h]

30 USAID MISSIONS

will have implemented at least one activity designed to address one or more gaps in the national digital ecosystems in their countries;

50 IMPLEMENTING PARTNERS

consistently have[i] demonstrated alignment with the Principles for Digital Development in their programming;

75 NEW MISSION-FUNDED PROGRAMMATIC ACTIVITIES

use digital technology to achieve measurable development outcomes;

AN AVERAGE 30-PERCENT

increase in Internet inclusion[j] in target countries;

A 20-PERCENT

increase in private-sector digital investment leveraged in underserved markets; and

60 PERCENT

of local digital innovators financed and/or supported by USAID will receive follow-on funding from other sources.

Photo: Riaz Jahanpour, USAID

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h. The full set of targets for the five-year period covered by the *Digital Strategy* will appear in the forthcoming MEL Plan.

i. Here, "consistent" means three or more activities over a five-year time period.

j. Internet inclusion is a proxy for digital inclusion, measured through an index score composed of four dimensions: availability, affordability, relevance, and readiness.

CONCLUSION

Today's digital transformation, with all of its potential benefits and risks, can appear rapid, unprecedented, and even disorienting; however, it is only the beginning. We ultimately do not know what new technologies will arise in the coming years, or how people will use them in the world's changing demography, governance, and environment. Nor do we know what types of challenges we will have to address as global pandemics or man-made disasters unexpectedly arise. What we know with certainty is that USAID's mission, and implementing the USAID *Digital Strategy* will contribute to the goal of ending the need for foreign assistance. This *Digital Strategy* is an important step toward reaffirming USAID's role in the digital era to promote and realize democratic values abroad and advance a free, peaceful, and prosperous world.

Recent efforts to fight the COVID-19 pandemic demonstrate the incredible power digital technology offers as we rise to face unprecedented global threats and support communities along their Journeys to Self-Reliance. Digital health-information systems supported by USAID assist doctors and nurses in their response efforts. The Government of Liberia is using mHero, a two-way information-sharing platform developed during the West Africa Ebola outbreak to communicate with frontline health workers. Thanks to mHero's interoperable, flexible design, the Government has repurposed the system to send weekly updates on COVID-19 to the field, and to support early case-detection. These life-saving innovations are possible not just in Liberia but in all countries, and, as part of the *Digital Strategy*, USAID will promote this type of digital development worldwide.

Photo: Jack Gordon, USAID

Fortunately, we are not alone on this journey. This is a moment of opportunity for governments and citizens around the world to engage in an earnest public discussion about topics like digital access, interoperability, the ownership and privacy of data, and the effects of algorithms on society.[98] The potential for the misuse of digital tools also creates opportunities for USAID to lead by anticipating and mitigating digital risks to promote democracy and human rights.

USAID's programming must ensure that laws, policies, actions, and informal governance mechanisms funded by U.S. taxpayers all contribute to a more open, inclusive, and secure global digital ecosystem and digitally enabled society. Governments with political will and technical capacity will be able to take steps that are ultimately in the interest of, and democratically guided by, their citizens to make clear and informed choices about digital infrastructure; develop national strategies and plans to guide investments; strengthen cybersecurity, ensure digital services are inclusive; and deliver more reliable, higher-quality data. As a responsible steward of U.S. taxpayer dollars, USAID will identify and appropriately budget for the long-term costs associated with building, operating, and maintaining digital infrastructure and systems, as well as foster sustainable ownership and management of these systems by governments and the private sector in our partner countries.

USAID will continue to ensure that technology and digital ecosystems are built and used to enable women and men to live freer, healthier, more prosperous lives. We envision a world that overcomes the chasm between the digitally enriched and an unemployable underclass; where there is a global convergence toward democratic governance and higher living standards; and in which self-reliant countries guarantee democracy, security, dignity, human rights, and justice for their citizens.

Photo: Riaz Jahanpour, USAID

ANNEX I

DETAILED STRATEGIC FRAMEWORK

By working to pioneer new approaches and learn from both success and failure, the U.S. Agency for International Development (USAID) can help governments, civil society, the private sector, and local communities in our partner countries to maximize the potential of the digital transformation and minimize its risks. USAID will pursue initiatives that, collectively, will enable us to achieve the *Strategy*'s goal.

GOAL OF THE *DIGITAL STRATEGY*: To achieve and sustain open, secure, and inclusive digital ecosystems that contribute to measurable development and humanitarian assistance outcomes and increase partner countries' self-reliance.

Achieving this goal requires a multi-faceted, systems-oriented approach.[99] Two core, interrelated issues—*how* we use digital technology and the *context* in which we use it—are key to achieving this *Digital Strategy*'s two objectives:

- **Strategic Objective 1: Improve measurable development and humanitarian assistance outcomes through the responsible use of digital technology in USAID's programming**
- **Strategic Objective 2: Strengthen the openness, security, and inclusiveness of national digital ecosystems**

USAID will achieve these Strategic Objectives through a set of mutually reinforcing Intermediate Results (IRs); because the *Digital Strategy* employs a systems-oriented approach to digital-related programming, many activities will lead to gains under multiple IRs. The following are the IRs proposed under the Strategic Framework for the *USAID Digital Strategy*:

Intermediate Result 1: Secure and appropriate use of digital technology across USAID's programming improves measurable development and humanitarian-assistance outcomes

- **Sub-IR 1.1:** Insights from assessments of digital ecosystems and advanced data analysis used across USAID's Program Cycle (to inform strategic planning and design).
- **Sub-IR 1.2:** Established digital best practices integrated into Missions' strategies, programming, monitoring, and evaluation.
- **Sub-IR 1.3:** Missions make cross-sectoral investments in components of the digital ecosystem, such as infrastructure, services, policies, organizational commitment, *etc.*
- **Sub-IR 1.4:** Agency staff demonstrate awareness of, and competence and capabilities in, digital development.

USAID's staff and partners need to be able to identify and take advantage of opportunities to integrate digital tools and systems into development programming. This will require increased capacity; knowledge of, and commitment to, the Principles for Digital Development and established digital best practices; and understanding the sustainability of our digital investments. USAID will build on sectoral successes in digital programming while focusing new attention on cross-sectoral investments.

Development and humanitarian assistance programming will improve as USAID's Missions and other Operating Units (OUs) recognize the value of integrating digital technology into their projects and activities and responsibly adopt digital technologies and approaches. In turn, our Missions and OUs will have increased access to data they can use to make more timely and better-informed decisions about managing their programs.[100] Simultaneously addressing the emerging risks and potential for the misuse of digital technology will be critical.

Sub-IR 1.1: Insights from assessments of digital ecosystems and advanced data analysis used across USAID's Program Cycle (to inform strategic planning and design)

The development implications of digital ecosystems can be positive or negative, and often unique to specific sectors or communities. Assessments of digital ecosystems enable the sound consideration of digital issues in USAID's programming. In some cases, assessments might reveal reasons to limit the use of digital technology. In others, they can reveal unrecognized opportunities to harness the digital ecosystem to further development gains. OUs should weave the results of assessments and analyses, in addition to consideration of USAID's Country Roadmaps and the relevant Self-Reliance Metrics, into each phase of programming, coordinated with the U.S. Government interagency. This includes the development of sector- or issue-specific strategies, the design of projects and activities, procurements and solicitations, and monitoring and evaluation. Advanced methods of analyzing data (*e.g.*, geospatial analysis, data-visualization, early warning, and futures analysis) can equip USAID's staff with insights that can inform our programmatic decisions.

Sub-IR 1.2: Established digital best practices integrated into Missions' strategies, programming, monitoring, and evaluation

Over the past 20 years, the development community has learned crucial lessons about what works in digitally enabled programming. The Principles for Digital Development codify some high-level best practices *[see Annex IV]*. In many cases more detailed guidance and examples may be needed.[101] USAID will continue to translate established best practices *(See Box)* into concrete guidance for Missions' programming, strategies, and technical evaluations, and wil disseminate this guidance through training, publications, and other avenues. In addition, USAID will work to expand the evidence base for digitally enabled programming by using rigorous evaluations to test the efficacy of both existing and emerging digital approaches.

Sub-IR 1.3: Missions make cross-sectoral investments in components of the digital ecosystem, such as infrastructure, services, policies, organizational commitment, *etc.*

Cross-sector investments can improve efficiency, enhance investment in "global good" technology, and promote interoperability. An ecosystem approach will include greater support for common digital platforms and building blocks, including those being developed at

DIGITAL BEST PRACTICES

In the context of digital ecosystems, what constitutes good or best practice will vary based on context and technology. For example, the Principles for Digital Development reflect lessons learned from using digital technology in the context of development programming. For issues like interoperability, cybersecurity, or payments (among other areas), organizations such as the International Standards Organization (ISO) and the National Institute for Standards and Technology (NIST) within the U.S. Department of Commerce, as well as other industry- or civil society-affiliated bodies have developed or defined various widely recognized or adopted standards or practices. USAID's definition of "industry best practice" is a technique or methodology that, through experience and research, has proven to lead to a desired result.[102]

For the purposes of this *Strategy*, "established best practices" are best practices (*e.g.*, principles, guidelines, frameworks, white papers, *etc.*) that USAID has formally endorsed.

the international level. USAID should push for software developed by partners with U.S. taxpayer funds for the purposes of development and humanitarian assistance to be consistent with the goals of sustainability and re-use, to allow for interoperability and customization of these platforms in a way that reduces waste and vendor lock-in.[103] This is not to say, however, that the Agency does not invest in proprietary products or those that have intellectual-property rights attached to them. USAID will encourage interdisciplinary approaches to designing projects in pursuit of cross-sectoral opportunities.

THE ROLE OF GLOBAL GOODS

Many fundamental building blocks for open and interoperable digital ecosystems exist and serve as core components that should be replicated and built upon to advance open, inclusive, and secure country digital ecosystems. These global goods include standards, frameworks, software tools, digital systems, and conceptual approaches with broad utility across development sectors. Host-country governments and development partners should consider these digital building blocks, which are fundamental to shaping our collective path forward in achieving the Journey to Self-Reliance in a digital age.

Sub-IR 1.4: Agency staff demonstrate awareness of, and competence and capabilities in, digital development

USAID's staff must continue to appreciate the impact of digital technology on development outcomes, regularly receive training in digital development, and be empowered to apply digital skills to their work. Improving the skills and capabilities of staff will require more than formal, classroom-based learning. It will involve better incentives for continuous, on-the-job learning about digital issues, including staff rotations and details with the private sector, technology firms, or through interagency collaborations. It will also mean rewarding and recognizing staff who demonstrate initiative and leadership on responsibly harnessing digital technology in pursuit of measurable development gains.

Intermediate Result 2: USAID's partners[k] use effective approaches to engage with the digital ecosystem responsibly

- **Sub-IR 2.1:** USAID partners demonstrate digital awareness and alignment with established digital best practices.
- **Sub-IR 2.2:** Exchanges of information between USAID and its partners expand established digital best practices.
- **Sub-IR 2.3:** Multi-stakeholder engagements improve alignment with, or reform, the digital strategies, policies, and systems of partner governments.

Digitally enabled implementing partners will contribute to more efficient, effective, and measurable development outcomes in several ways. They will leverage opportunities to integrate digital technology and services into their work with civil society, higher-education institutions, governments, the private sector, and others; support digital global goods; help to mitigate risks to privacy and

k. "Partners" include host-country governments, private voluntary organizations, local and international non-governmental organizations, universities, other U.S. Government Departments and agencies, the United Nations and other multilateral organizations, professional and business associations, and private businesses and individuals. For a complete definition, see the Glossary in Annex III.

security; and facilitate mutually beneficial information-sharing. This will occur as partners build capacity for digital expertise, regularly integrate digital technology into their programming and operations, support systems that are aligned with national strategies and internationally established standards or best practices, and share information and learning.

Sub-IR 2.1: USAID's partners demonstrate digital awareness and alignment with established digital best practices

USAID's partners' alignment with globally recognized standards or best practices, such as the Principles for Digital Development, the NIST Cybersecurity Framework, and National Spatial Data Infrastructure, for example, can foster the growth of digital ecosystems that offer more value to local communities. USAID can support this by creating better feedback loops with our partners on the effective use of digital tools, including through USAID-sponsored training on digital development; incentivizing the sharing of data and digital content; and using language in procurements and solicitation that creates incentives for the application of the Principles for Digital Development. While building the capacity of our international partners is important, strengthening the capacity of local implementers and non-governmental organizations (NGOs) is especially crucial. Digitally aware local partners can help increase digital literacy more broadly, and will yield long-term benefits as people and ideas diffuse through the public and private sectors.

Sub-IR 2.2: Knowledge sharing between USAID and partners expands established digital best practices

As technology evolves, so will the benefits and risks associated with its use. While we work to leverage technological innovation for development gains, we cannot afford to cement best practices or adhere to static guidelines. Our approaches, workforce, and procurement and management practices should constantly adapt. No single actor can have complete insight into all the development implications of this rapidly changing landscape. USAID will use tools like partnerships with local higher-education institutions and global alliances with the private sector to engage with stakeholders across the development community to identify and refine best practices in digital development. Higher-education institutions can play a key role in both building the evidence base for digital best practices and disseminating them to the next generation of public- and private-sector leaders to foster digital literacy and skills. USAID will prioritize the generation and exchange of insights with both global and local partners around how an ever-evolving digital ecosystem can, and should, augment development.

Sub-IR 2.3: Multi-stakeholder engagements improve alignment with, or reform, the digital strategies, policies, and systems of partner governments

By collaborating with the broader development community, USAID will encourage partners to align with host-country government digital priorities and systems where doing so is in accordance with globally recognized standards and best practices, or to reform them when they do not. Local partners are particularly well positioned to understand and engage with their governments' digital priorities. By broadening the coordinated, responsible use of digital technology and platforms across the development community, USAID will reinforce similar efforts pursued by host-country governments to improve public accountability, transparency, and efficiency.

Intermediate Result 3: Communities in partner countries adopt, and have the capacity to securely use and contribute to, digital ecosystems for improved services, economic opportunities, and civic engagement

- **Sub-IR 3.1:** Vulnerable or underserved groups are capable of using, contributing to, and benefiting from digital ecosystems.
- **Sub-IR 3.2:** The secure and responsible use of digital ecosystems increases the effectiveness of civil society and the media, including organizations led by women, youth, people from religious and ethnic minorities, and Indigenous Peoples.
- **Sub-IR 3.3:** Individuals and micro, small, and medium-sized enterprises (MSMEs) engage with the digital ecosystem to gain access to markets, information, and finance.

The dividends of an open, inclusive, and secure digital ecosystem manifest in how communities derive benefits from engagement in it—not merely as the users of digitally enabled services, but as the creators and developers of those services as well. USAID's programming can support a digital ecosystem that reflects these characteristics to provide a source of household resilience, improve citizen-responsive governance, deliver critical services efficiently, protect natural resources, and foster inclusive economic growth and trade.

Sub-IR 3.1: Vulnerable or underserved groups are capable of using, contributing to, and benefiting from digital ecosystems

Programming designed to strengthen household resilience, improve educational outcomes for girls,[104] or find employment opportunities for at-risk youth can use digital technology to deliver useful information and improve financial well-being. Across all communities with which we work, USAID will adapt our programming to increase equitable participation in the digital ecosystem. Achieving equitable participation requires a multipronged approach that includes recognizing and addressing cultural, language, and behavioral barriers to the participation of vulnerable or underserved groups in the digital ecosystem; working with these groups to build digital familiarity or enhance the delivery and uptake of services; and equipping them to prepare for, and respond to, dynamic cycles of mis/disinformation, hate speech, and violent extremism.

Sub-IR 3.2: The secure and responsible use of digital ecosystems increases the effectiveness of civil society and the media, including organizations led by women, youth, religious and ethnic minorities, and Indigenous Peoples

Citizens must have the tools for citizenship in a digital era. This means being aware of available digital technology and tools, as well as having the skills to use them effectively. It also means citizens can advocate for access when needed, and they can understand their rights related to evolving technologies that might introduce new threats. Academic institutions and the media play a critical role in informing the public through independent, fact-based research and reporting and the creation of locally relevant content. Civil-society organizations, particularly those that represent disenfranchised groups, such as women, young people, religious and ethnic minorities, and Indigenous Peoples, can use this information to generate feedback loops to increase community engagement and collectively push back against the rise of digital authoritarianism or the exploitative use of digital technology. USAID can support this by funding educational programs; increasing the digital literacy and security of our partners; working with academic institutions and partners to create locally relevant digital content; and supporting public workshops that include women, youth, and minority groups to discuss government services or policies related to Internet freedom, human rights, and new digital technologies.

Sub-IR 3.3: Individuals and micro, small, and medium-sized enterprises (MSMEs) engage with the digital ecosystem to gain access to markets, information, and finance

Digital ecosystems have the potential to equip informal merchants, women entrepreneurs, smallholder farmers, and MSMEs engaged in cross-border trade with access to markets, information, and finance. These diverse users require trustworthy services that reflect their needs. The needs of rural shop owners and smallholder farmers are distinct from those of formal MSMEs that transact purely on e-commerce platforms. Similarly, digital trade that spans borders depends on free data flows, digitized customs, and innovations in trade finance made possible by new approaches to lending. Just as needs differ, so too do the barriers to using the digital ecosystem as an enabler of economic empowerment and trade. To address these barriers, USAID will build on our existing MSME programming to provide training and support to individuals, entrepreneurs, and enterprises, along with policy-level interventions within the digital ecosystem to make digital trade and finance more hospitable for MSMEs.

Intermediate Result 4: Improved commitment and capacity in partner countries foster digital ecosystems that align with established global best practices

- **Sub-IR 4.1:** Internationally established digital best practices implemented by public institutions and the private sector.
- **Sub-IR 4.2:** Enabling environment for digital ecosystems improved through collaboration between USAID, governments, the private sector, and civil society; malign influences in digital ecosystems countered.
- **Sub-IR 4.3:** Policy-makers and regulators engage with, and provide responsible oversight of, digital ecosystems.

Commitment and capacity in partner countries is essential to cultivating and sustaining open, secure, and inclusive digital ecosystems. In coordination with interagency partners, particularly the U.S. Department of State, USAID's programming will support governments, civil society, and the private sector to make balanced and informed choices about digital infrastructure, develop national strategies and plans to guide investments, strengthen cybersecurity systems and capacity, provide effective oversight of digital ecosystems, and ensure digital services are available to everyone.

Sub-IR 4.1: Internationally established digital best practices implemented by public institutions

Public-sector institutions must be responsible in their use of digital technology. The public sector has an outsized influence on the trust citizens place in the digital ecosystem—a trust that is hard-won and easily lost. USAID will collaborate with public-sector institutions, academia, the private sector, and civil society to apply globally recognized standards and best practices related to digital technology. Whether digital technology delivers public services or public administration shifts onto digital platforms, USAID will foster greater commitment to sound system governance, respect for data privacy and inclusive practices, and investments in data security. Likewise, USAID will foster a greater commitment to the use of digital global goods and data for evidence-based decision-making.

EXPANDING ACCESS AND USAGE THROUGH NATIONAL BROADBAND PLANS AND UNIVERSAL SERVICE FUNDS

USAID has worked with governments around the world to launch and enhance National Broadband Strategies and Universal Service Funds (USFs) to extend affordable broadband Internet services to underserved communities. For example, in 2010 USAID helped the Government of Kenya create a USF and *National Broadband Strategy* to expand broadband access dramatically across the country. The Government set aside $1.1 billion to implement its *National Broadband Strategy* through 2017, with plans to mobilize another $1.7 billion in private-sector investment.[105] In 2014, USAID helped draft and launch Indonesia's five-year National Broadband Plan, which helped unlock more than $400 million from the country's USF and generated an estimated $23 billion in affordable, low-cost technologies to deliver access to the Internet to underserved schools, local governments, rural health clinics, and citizens at commercially viable prices.[106]

Sub-IR 4.2: Enabling environment for digital ecosystems improved through collaboration between USAID, governments, the private sector, and civil society; malign influences in digital ecosystems countered

Laws, regulations, and policies play a critical role in fostering the development of an open, inclusive, and secure digital ecosystem. Of particular importance are policies that foster competition and innovation; a multi-stakeholder approach to governance of the Internet; and the establishment of robust frameworks for digital trade, consumer protection, data privacy,[l] and cybersecurity. Certain sectors will present issues that merit a specific policy response (such as data-privacy rules for medical records or data-use rules for lending decisions). In concert with the U.S. Government interagency, USAID will encourage policy-makers to align with globally recognized standards; favor a private-sector–led model[m] for digital ecosystems; and engage on policies and regulatory approaches at multiple levels, including through global alliances, multi-stakeholder partnerships, and direct technical assistance. Along with the U.S. Department of State and other Federal Departments and Agencies, USAID will expose and counter the manipulation of digital technologies and the dissemination of hate speech and misinformation by malign actors, consistent with our Clear Choice Framework and Development Framework for Countering Malign Kremlin Influence. We will help national governments, civil society, and the private sector make smart choices as they adopt digital technologies and take steps to protect their security from intrusion and subterfuge.

Sub-IR 4.3: Policy-makers and regulators engage with, and provide responsible oversight of, digital ecosystems

Governments that use digital systems and maintain digital infrastructure better can serve their citizens more effectively and strengthen the private sector. Increased digital capacity and understanding can help governments both to be better partners in digitally enabled donor programming and deploy digital tools more intelligently by taking a whole-of-government approach.[107] This will not only promote more-effective programming, but also spur better alignment and coordinated investments within the donor community. By working with private-sector and interagency partners, USAID will help governments understand the financial and security risks of some of the insecure, closed digital systems offered by authoritarian actors. In coordination

l. Governments should not impose regulations that govern privacy in a manner that limits consumer choice or use them as a disguised trade restriction. To advance the growth of global e-commerce, development efforts should ensure the transfer of data cross-border, and minimize limits on where data can be stored and processed, to enhance and protect the global digital ecosystem.

m. In applying a "private-sector-led" model to fostering digital ecosystems, policy-makers might pursue a spectrum of actions, with the common characteristic being a general preference to build on the unique skills, capital, and technology that the private sector possesses, as opposed to relying on a purely state-led model of development.

with the U.S. Government interagency and the donor community, USAID will provide technical assistance, training, and advisory services to government actors and institutions on digitization strategies, cybersecurity best practices, and regulatory improvements.

Intermediate Result 5: Digital economies led by the private sector are competitive, innovative, responsible, and inclusive

- **Sub-IR 5.1:** Private-sector investments in digital infrastructure and services align with internationally established best practices.
- **Sub-IR 5.2:** Private-sector skills, incentives, and capabilities contribute to development and promote inclusive and responsible service-delivery in the digital economy.
- **Sub-IR 5.3:** Local innovators, especially women, youth, ethnic and religious minorities, and Indigenous Peoples, participate in the digital economy.

The private sector is key to extending the reach and quality of the infrastructure and services that underpin the digital economy. In addition to mobile and Internet connectivity, this includes other prerequisites to information-exchange and economic activity, such as secure, interoperable, government-led data, digital-identification, and payment systems. Unequal digital access can further reinforce the strongest private- and public-sector actors, which can impair innovation, the competitive entry and exit of firms, and consumer protection. USAID will continue to work to ensure that the poor and marginalized participate in the digital economy by fostering the right market conditions and encouraging investment led by the private sector.

WORKING TO STRENGTHEN CONNECTIVITY INFRASTRUCTURE IN THE REPUBLIC OF LIBERIA

To help Liberians rebuild after the 2014–2016 Ebola outbreak and prepare for future emergencies, USAID launched a first-of-its-kind partnership with CSquared and Google in 2017 to bring high-speed metro fiber communications infrastructure to Monrovia. This $12-million (cash and in-kind) 50/50 co-investment between CSquared and USAID connects government offices, health clinics, and businesses to high-speed Internet service for the first time. Without USAID's co-investment, CSquared would not have entered Liberia, which likely would leave the country without this connectivity for many years.

Sub-IR 5.1: Private-sector investments in digital infrastructure and services align with established best practices

When aligned with globally recognized standards and best practices, digital infrastructure and services can enhance trust, security, and efficiency. USAID will promote investment at various levels, such as integrating network expansion with projects that target community institutions (such as schools and hospitals); building the capacity of the local workforce to build and manage digital infrastructure responsibly; identifying and testing innovative business models for sustainably serving underserved communities; and de-risking investment through development-finance initiatives. In alignment with the agency's *Private-Sector Engagement Policy*, USAID will foster the adoption of globally recognized standards; industry norms for responsible conduct, skills and capacity-building; and the application of human-centered design to promote an open, secure, reliable, and interoperable Internet.

ANNEX I

Sub-IR 5.2: Private-sector skills, incentives, and capabilities contribute to development and promote inclusive and responsible service-delivery in the digital economy

To develop useful, trustworthy services for all stakeholders, the private sector must understand digital-first business models that can reach underserved users. For example, the rapidly growing global youth population combined with the rise of digital technologies provides a unique opportunity for governments, higher-education institutions, and development practitioners to support, protect, prepare, and engage young people around the world. When used responsibly and appropriately, technology promotes civic engagement, expands learning and workforce-development opportunities, and sparks innovative solutions to societal and developmental challenges. USAID will engage with the private sector to promote the adoption of established digital best practices and globally recognized standards, spur investments in digital literacy and capacity-building, and encourage the application of human-centered design to tailor products and services better to underserved users.

Sub-IR 5.3: Local innovators, especially women, youth, ethnic and religious minorities, and Indigenous Peoples, participate in the digital economy

Communities need a healthy environment for entrepreneurship and developing talent. Progress toward self-reliance requires investment in a pipeline of innovators with the skills, incentives, and capabilities to develop services that rely on sophisticated technologies (*e.g.*, smartphones, artificial intelligence/machine learning, big data, the Internet of Things). This requires a multi-stakeholder approach that includes universities and vocational and trade schools, local innovation hubs and start-up networks, and industry associations. USAID will engage with country-level stakeholders across the innovation ecosystem, with particular attention to fostering the inclusion of women, youth, people with disabilities, and other traditionally marginalized groups.

STRENGTHENING HIGHER EDUCATION FOR A DIGITAL-READY WORKFORCE IN SOUTHEAST ASIA

The global digital economy demands a workforce with ever-evolving, cutting-edge skills. In Southeast Asia, strong partnerships between academic institutions and private-sector actors play a critical role in creating a workforce equipped to participate effectively in an increasingly digital economy. To improve the engineering workforce in the Socialist Republic of Vietnam, USAID/Vietnam's Higher Engineering Education Alliance Program (HEEAP)[108] activity developed dynamic training and facilitation programs to improve the capacity of faculty in science, technology, engineering, and mathematics; leveraged private-sector partnerships to obtain in-kind contributions of cutting-edge technology tools; and generated creative pathways toward regional and international accreditation at the institutional level. USAID/Philippines' Science, Technology, Research and Innovation for Philippine Development (STRIDE) program[109] worked to increase the capacity of university efforts in research and innovation and promote academic-industry collaboration by fostering the creation of offices for knowledge- and technology-transfer, career centers, innovation workshops, and novel grant mechanisms. Through adaptive and iterative processes and with a demand-driven, collaborative approach, these programs contributed to mutually beneficial capabilities in technical and research that meet the needs of a new employer marketplace while building critical skills that enable a workforce to be competitive in a digital age.

Building on the Strategic Framework, the following Annex outlines the mandates, recommendations, and considerations USAID will employ to achieve the overall goal and objectives of this *Strategy*. A more detailed Implementation Plan will follow this *Strategy*, with efforts prioritized according to constraints around resourcing and urgency for each individual country context.

INITIATIVES TO IMPLEMENT THE *DIGITAL STRATEGY*

To achieve the goal and objectives of the *Digital Strategy*, the U.S. Agency for International Development (USAID) will take a multipronged approach. The Center for Digital Development (CDD) of the U.S. Global Development Lab will coordinate with other Operating Units (OUs) within the Agency (particularly the Offices of the Chief Information Officer [CIO] and Acquisition and Assistance [OAA] in the Bureau for Management [M], the Office of the General Counsel [GC], and the Office of Human Capital and Talent Management [HCTM]) to execute the four key tracks of implementation. We will do the following:

1. Develop tools and resources necessary to provide development and humanitarian assistance effectively in a digital age;
2. Build capacity to better navigate the unique opportunities and risks that digital technology presents across USAID's Program Cycle;
3. Default to the use of appropriate technology in our development and humanitarian-assistance programming; and
4. Invest in our human capital to continue to build the USAID of tomorrow.

This section sets out USAID's vision for how we intend to achieve the goal and objectives of the *Strategy*. The implementation of the *Strategy* will allow for learning and adaptation as the digital landscape continues to evolve.

This *Strategy* contains USAID's current vision; however, we expect that, based on lessons learned during implementation, the Agency could modify some of the initiatives detailed herein accordingly over the five-year span of the *Strategy*. USAID will continue to have conversations with key stakeholders both within and outside of USAID. All of the initiatives are subject to the availability of funding and will need to meet current Administration priorities. In addition, any initiatives that affect our contractors and recipients must be assessed against relevant policies and laws.[110] Where necessary, USAID will conduct notice-and-comment rule-making to implement any Agency-specific requirements beyond those already established in existing rules to ensure we target any new obligations on partners appropriately to the relevant strategic priorities while considering the equities on all relevant parties. The implementation of the *Strategy* will start in a subset of target countries and will ultimately extend to all USAID OUs.

ADOPT AN ECOSYSTEM APPROACH TO DEVELOPMENT IN A DIGITAL AGE

Taking a systems-level approach, USAID will create tools and resources to enable our staff and partners to understand better and respond to digital opportunities or risks in the digital ecosystem, integrate digital tools and approaches across every region or sector, and navigate the current evidence and learnings in a rapidly evolving field.

- **Digital Ecosystem Country Assessments (DECAs) will inform the development, design, and implementation of our strategies, projects, and activities.** USAID is developing a standardized assessment of a digital ecosystem to inform country-level strategic planning, the design of projects and activities, and the implementation of activities. The DECA will examine aspects of a country's digital ecosystem, including its infrastructure; access to, and the use, collection, and analysis of, data; digital society and governance; censorship, information

integrity, and digital rights; cybersecurity; digital finance; and digital trade and e-commerce. The resulting information will identify concrete areas of opportunity and risk for Mission-funded programming based on where a country currently sits on its digital Journey to Self-Reliance. In countries in which extensive gaps in the digital ecosystem exist, Missions can build responses into sector-level programming or develop cross-cutting efforts country-wide.

By taking a holistic view of ecosystem challenges and U.S. engagements and investments in-country, DECAs can facilitate interagency collaboration and private-sector engagement to strengthen the digital ecosystem. Digital experts based in the CDD will conduct a Mission's initial DECA, with technical support from partners as needed, and always in partnership with Mission staff. Because of the rapid pace of change within digital ecosystems, each Mission's Digital Development Advisor should update these assessments every one to two years, with support from the CDD, to inform strategic planning and the design and implementation of projects and activities regularly about new opportunities or risks in the digital ecosystem.

- **USAID will establish a Digital Ecosystem Fund[111] to support *Emerging Opportunities* and *Strategic Initiatives* in a Digital Ecosystem.** USAID must make targeted investments to achieve a vision of open, inclusive, and secure digital ecosystems that can also withstand aggressively pursued authoritarian interference and misinformation. Subject to the availability of funds, USAID Missions will use the Digital Ecosystem Fund to finance activities that can respond to short-notice opportunities or risks related to the digital ecosystem and long-term strategic opportunities to strengthen the inclusiveness of the ecosystem. A team in the CDD will manage the Fund and will collaborate with other OUs, including M/CIO, to do the following: (1) provide guidance on niche topics related to proposals to the Fund; (2) facilitate outreach to USAID's Missions; and, (3) manage activities supported by the Fund. DECAs and the gaps identified therein will influence decision-making on the Fund. By being a source of internal funding deployable in any sector and any implementing mechanism, the Fund will afford Missions the flexibility that multi-year planning processes do not always facilitate.

- **USAID Bureaus and Independent Offices should develop Digital Visions that align with this *Digital Strategy*.** USAID's OUs will develop guidance in the form of a Digital Vision Paper[112] that articulates how they should integrate digital technology into programming in that region or sector. The Vision Papers should reflect recognition of key trends and critical priorities for digital development and provide clear direction for the region or sector. Digital Vision papers should map out actions that align with the Agency's *Digital Strategy* and are consistent with other Agency priorities, such as the New Partners Initiative[113] and the *Acquisition and Assistance Strategy*.[114] Working with agile, untraditional partners will be essential for successfully implementing digitally enabled programming. OUs should update the direction set out in Vision Papers every two to three years and fully integrate it into strategic planning, the design and implementation of activities, training, monitoring, evaluations, and learning. Each OU's Digital Development Advisor or a designated point of contact should lead this process with support from CDD.

- **USAID should align Mission-led work such that programming reinforces and contributes to the development of open national digital ecosystems.** When national digital strategies are not in place, USAID will work with willing government partners and the private sector to develop country-specific visions for open, secure, and inclusive digital ecosystems that facilitate interoperability, enable the exchange of ideas, and the trade of goods and services across borders. In addition, USAID should collaborate with our U.S. Government interagency colleagues in-country to ensure that U.S. Departments and Agencies work in coordination on digital ecosystem issues. When government commitment is lacking, USAID will

work with other donors, civil society, and private-sector stakeholders to build this commitment and ensure the implementation of digital development in a secure, inclusive manner that recognizes and upholds individual and community rights, safeguards against digital exploitation, and encourages the use of data for decision-making.

EVIDENCE AND ADAPTATION IN A DIGITAL AGE

Digital technology is in a constant state of evolution, as emerging technologies like artificial intelligence, blockchain, and the Internet of Things challenge established models of user interaction, service-delivery, and more. Absent intentional, robust, and actionable research, the development community will lack the resources necessary to appreciate fully and act on the risk posed, or benefit offered, by both current and emerging technology.

- **USAID will establish a Digital Learning Agenda to ensure the Agency is continually adapting our planning and programming to changes in the digital sphere.** USAID will maintain an active research portfolio to investigate the optimal applications of digital technology and advanced analytics in our programming; mapping the implications and impact of both the present and potential use of digital technology across sectors and country contexts; and creating evidence-driven feedback loops to inform programming and planning regularly. As we strive to make the most effective use of taxpayer funds, we will continue to prioritize deepening our understanding of the most robust means of delivering development and humanitarian assistance in a digital age. USAID will carry out this Learning Agenda in partnership with the academic community, bolstered by strong collaboration with implementing partners, government actors, and other relevant thought-leaders who strive to improve the development community's understanding of both the promise and the pitfalls of digital technology. We will grow our evidence base and our systematic visibility into programmatic investments in digital tools, systems, and platforms, to engender a robust assessment of the impact of the *Digital Strategy*, and of digital technology writ large.

HELP OUR PARTNERS NAVIGATE OPPORTUNITY AND RISK

To ensure USAID and our partners fully seize the opportunities and appropriately mitigate the risks that digital technology presents, we must employ a principled approach to apply digital development effectively and responsibly throughout our Program Cycle. USAID will build on our years of work in key digital fields to develop and provide coherent programming guidance applicable to all sectors. These support resources will guide the secure and appropriate use of digital technology in strategic planning, the design and implementation of projects and activities, collaborative learning and adapting, and monitoring and evaluation. As the nature of opportunity and risk continues to evolve in the fast-moving world of digital technology, USAID must remain flexible in how we endeavor to address risk and seize opportunity. USAID will undertake the following initiatives with an aim to learn and adapt throughout the process of implementation. Over the five-year course of this *Strategy*, these initiatives are likely to evolve, augmented by additional activities as the state of the global digital ecosystem develops.

- **USAID will augment our commitment to close the gender digital divide and address the disproportionate harm women and girls face online.** Empowering women economically and socially is a core tenet of development policy, but persistent—and growing—gaps in women's access to, and use of, digital technology[115] significantly hamper the ability of

digital technology to help women improve their lives, the stability of their families, and the resilience of their communities. Once online, women and girls face harm at a disproportionate rate, which further discourages their engagement with the digital ecosystem. Through this *Digital Strategy*, USAID commits to closing the gender digital divide through projects like the Women's Global Development and Prosperity Initiative and the WomenConnect Challenge, and to require that all programming that involves digital technology will address the digital inequities and digital harms women and girls face. The CDD and the Office of Gender Equality and Women's Empowerment in the Bureau for Economic Growth, Education, and the Environment will clearly define and offer evidence into how development programming can reduce the gender digital divide, develop tools for staff to use in strategic or programmatic design to address this challenge, and provide technical support in this field.

- **USAID will increase awareness of both the value and risks of online and mobile access for children, to reduce their exposure to disturbing or potentially harmful content, and to prevent exploitation.** Digital technology offers children, young people, and their parents tremendous opportunities to advance well-being. Digital technology also plays an increasingly important role in protecting children, by facilitating birth registration, rapid family-tracing, and case-management. However, increased digital access also increases the risk of exposing children to harm.[116] Through the *Digital Strategy*, USAID commits to supporting the strengthening, implementation, and enforcement of laws and policies that prevent, respond to, and protect children from all forms of violence, exploitation, abuse, and neglect, including children vulnerable to online violence and exploitation.

- **USAID will increase our efforts to improve digital literacy[n] of all people to advance development.** Another persistent barrier to the adoption and use of digital technology in developing countries is gaps in the functional ability to use these digital tools fully among certain populations and social groups. USAID's programming that includes digital technology regardless of sector or geography must include considerations around digital literacy in our design, from helping smallholder farmers track commodity prices on their mobile phones to helping newspapers operate on multimedia platforms. USAID should also expand our ecosystem-level programming in digital literacy, for example, by working with Ministries of Education to build curricula in digital literacy; assisting in the development of voice-based and native-language applications that will expand the reach of those applications substantially; or supporting the development of civil-society organizations that serve as watchdogs on digital issues and protect digital rights. USAID will develop tools and offer technical assistance to help our staff understand all facets of digital literacy and digital skill gaps within a country's digital ecosystem and how to include these priorities in the design of strategies and activities.

- **USAID will expand our capacity to help governments, the private sector, civil society, and citizens in partner countries mitigate harm through cybersecurity programming.** As cyber threats to development grow increasingly prevalent and sophisticated, USAID should expand our ability to provide holistic support to the cybersecurity needs of stakeholders in partner nations. Cybersecurity is becoming a prerequisite to maintain the sustainability and value of USAID's development investments that leverage digital technologies and protect a project or beneficiary's credibility, safety, and ability to deliver effective results. USAID should include cybersecurity requirements in programmatic designs that use digital technologies and build the cybersecurity capacity and resilience of beneficiaries, especially vulnerable populations. USAID will work closely with the U.S. Government interagency and other donors

n. Digital literacy includes both skills related to the use of hardware or software and skills related to the use of digital media and information.

to coordinate interventions when appropriate, look to build beneficial partnerships with private technology and cybersecurity companies, and generally draw on the deep expertise that lies in USAID's partner community. USAID will develop guidance for staff in cybersecurity programming and provide technical assistance in the design and implementation of strategies and activities.

- **USAID will increase our investments in the privacy and protection of data in our programs.** Developing policies and practices to safeguard sensitive data and the personally identifiable information (PII) of users and beneficiaries must become standard practice in all activities that include digital technology. For example, when USAID designs and invests in programming that involves the collection and data on individuals, we must build in (and appropriately budget for) measures to protect privacy and protection, both within programs themselves and within USAID's own operational infrastructure. USAID will also support partner governments, civil society, and the private sector to develop robust, national-level policies for the privacy, protection, and governance of data, while balancing privacy needs with the need for cross-border flows of data. This support will include advocating for policies that protect individual privacy and advocating against ones that hinder responsible international data-sharing and e-commerce. Additionally, USAID will develop guidance to support our staff in safeguarding the privacy and protection of data in development and humanitarian-assistance programming, and will provide technical assistance throughout the Agency's Program Cycle.

SHIFT TO DIGITAL BY DEFAULT

USAID and our partners must work to maximize the effectiveness and efficiency of every U.S. taxpayer dollar we manage. The appropriate use of digital technology allows us to reap efficiency rewards in our programming, and digitally savvy staff can better protect better the individuals with whom we work. As we transform our approach to benefit from the gains of doing development in a digital age, we must shift to a programmatic position that takes a whole-of-government approach to leveraging digital technology and engaging with the digital ecosystem responsibly by default. Only when this approach does not clearly offer an advantage, or when the risks introduced by digital are too great, should we revert to an analog approach to development. We will work to reduce barriers for organizations of all types to move toward increasingly digital operations responsibly and securely implemented. It is USAID's vision that:

- **USAID will integrate the Principles for Digital Development into the design, procurement, and implementation of our awards, as appropriate.** Endorsed by USAID and more than 200 organizations, the Principles for Digital Development are a set of guidelines and best practices intended to help development practitioners succeed in applying digital technology to development and humanitarian assistance. In addition to procurement, USAID and its partners will meaningfully incorporate the Digital Principles and other established, empirically rooted best practices throughout the program cycle. USAID will further strengthen its commitment to the Principles for Digital Development and work to ensure their ongoing alignment with existing, pending, and future USAID policies and award requirements with input from our partners through public notice and comment where applicable.
- **USAID will mandate the digital collection of programmatic data.**[o] In lieu of paper-based collection methods, USAID will require that our staff and partners collect all programmatic data digitally to the greatest extent possible and in a responsible manner that is consistent with the Agency's existing data requirements and Federal information-collection procedures. This includes working under the authority of the Agency's information-collection officials to ensure

o. USAID will make exceptions to this mandate on a case-by-case basis.

responsible and ethical collection procedures while following submission requirements to USAID-approved repositories when applicable. As USAID adapts to dynamic digital ecosystems, the Agency will continue to promote responsible data-collection practices and standards that fuel advanced data analytics, such as artificial intelligence and machine learning, and allow USAID—and by extension, the broader development community—to maximize the potential of digital data. Ultimately, our goal must be to make the most sense of the data we collect for better decision-making, adaptive programming, and strategic planning, while also protecting data subjects from harm and empowering end-users and communities with actionable information. In the event the Agency grants an exception for this requirement, we will not only reveal obstacles to the responsible digital collection of data, but also address them where possible.

- **USAID's contractors and recipients will adopt cybersecurity and data-privacy protective measures for their internal operations and implemented activities.** USAID champions the principle of "do no harm" in our proposed move to digital by default, by elevating the need to protect and secure digital data collected by partners appropriately. Adequate cybersecurity and data-privacy protective measures include establishing protocols for the privacy, transparency, and protection of data in activities; investing in cybersecurity measures to protect data and systems; and implementing those measures. As already required in USAID's regulations (Sector 225 of Title 22 of the Code of Federal Regulations), implementing partners should also establish informed-consent mechanisms and policies on privacy protections for individuals, while safeguarding the collection, sharing, and use of data. These cybersecurity and data-privacy protective measures should also extend to the information systems and practices of sub-contractors and sub-awardees, where applicable in the recipient's award.[117]
- **USAID will make digital payments the default method of payment under all our awards.** Building on *Procurement Executive's Bulletin No. 2014-06*,[118] USAID will engage in the notice-and-comment rule-making process to make digital payments the default method of payment under all USAID-funded awards, with appropriate exceptions. (See, *e.g.*, the box on page 22 of this document.) Upon completion of the rule-making process, USAID will track the uptake and adoption of digital payments across all our programming. When USAID grants exceptions, we will work to identify and, when possible, address obstacles to digitizing payments.

BUILD THE USAID OF TOMORROW

In line with *USAID's Policy Framework*, the *Digital Strategy* will enable the Agency's staff to become digital leaders in development, increase coherence between our digital practice and policy, and align existing digital priorities with budgetary backing. We will strengthen USAID for the future in the following ways:

- **USAID will hire and upskill Digital Development Advisors (DDAs).** USAID's staff regularly face unfamiliar challenges as they work to carry out development and humanitarian-assistance programming in a rapidly changing digital world. The opportunities and challenges of doing development in a digital age necessitate the creation of new support roles upon which Mission staff can draw for technical expertise and strategic guidance. Subject to the availability of dedicated funding, OUs will aim to create a new position—DDA—to serve as their experts on digital ecosystems and provide guidance on anticipating, recognizing, and reacting to changes and opportunities in these ecosystems. DDAs will facilitate the DECAs and support all sectors in incorporating digital tools into programming with an emphasis on interoperability and risk-mitigation. The Advisors will support Missions' applications to the Digital Ecosystem Fund and other digitally related financing available through priority initiatives, and will work with the interagency on digital issues at post. They will also help OUs implement other parts of the

Digital Strategy, including digital payments, the collection of digital data, the Principles for Digital Development, closing the digital gender divide, and digital literacy. The DDAs will receive training and technical support from CDD, in coordination with other operating units within the Agency (particularly M/CIO and HCTM). Initially, USAID will identify up to 15 Missions in which to pilot this position, subject to the availability of funds; after assessing and improving on the pilot as possible, USAID will roll out the program Agency-wide.

- **USAID will plan to establish an Executive Fellowship Program in Digital Development.** USAID needs to invest in our future leaders' abilities to guide the Agency through a period of unparalleled digital growth. USAID's Executive Fellowship will be a long-term investment in USAID staff, and a key part of USAID's strategy to achieve Agency transformation. Annually, pending appropriate approval by leadership and HCTM, the Agency will select a number of U.S. Direct-Hire staff with highly successful professional experience and technical backgrounds to serve as Fellows. Fellows will initially work in CDD to acquaint them with the digital development work taking place across the Agency. The Fellows will then embed with a private-sector firm involved in technology or cybersecurity, a think tank, technology incubator, or academic institution that is working on digital issues related to one of the Agency's strategic priorities. Fellows will be exposed to innovation, application of technology, and organizational approaches to digital that could be used to transform USAID from within. The Fellows will return to the CDD for the final phase of the assignment, where they are expected to integrate their knowledge and skills in the technical/regional Bureau prior to returning to their permanent roles in the Agency.

- **USAID will integrate skills in digital development across the technical and programmatic occupational categories of our workforce.** Digital approaches are impossible to divorce from sectoral work; therefore USAID should integrate digital technology in a manner consistent with established digital best practices. Accomplishing this vision does not require that all of our staff become digital experts. Instead, we aspire to have a workforce that can act on opportunities and identify risks posed by the digital age. Fulfilling this target will call for the occupational categories in the USAID Foreign Service (called "backstops"), the Civil Service, and other hiring mechanisms to incorporate training sessions in digital development into technical conferences and as part of the on-boarding process for all new hires. Also, OUs will need to support hosting or sending staff to attend training in digital development.

- **The Agency should establish a senior-level position for Digital Development.** The transition from piecemeal, retail efforts scattered across the Agency's programming to systematic, smart investments in digital development will require sustained leadership to oversee this change. Pending approval and the availability of funds, USAID should create a new position, similar to that of the Chief Innovation Officer, Chief Geographer, and Chief Scientist, which will be responsible for coordinating programmatic digital investments across the Agency, maintaining cross-Agency coherence in the implementation of the *Digital Strategy*, and guiding the adaptation of the Agency's programs as the digital landscape evolves. The senior-level Digital Development Officer will sit in an appropriately aligned Bureau following the reorganization of several OUs as part of USAID's Transformation. Although focused on the Agency's programming, this position would liaise with the U.S. Government interagency to ensure effective coordination and alignment with U.S. foreign policies and would coordinate with the Agency's Chief Information Officer (CIO) and Chief Data Officer (CDO) to the extent their respective domains intersect or complement each other. At the same time, USAID will continue to invest in the authority of the CIO, CDO, and Chief Technology Officer to determine operational policy and technology and data requirements and guidance.

ANNEX III

GLOSSARY

This document uses the following definitions. Some terms lack a universally recognized definition.

ADOPTION

Changes that happen when people or institutions begin to use a new technology and incorporate it into their existing routines or processes. For example, people who use a mobile-money account to receive remittances and pay bills would be considered "adopters," while those who make a one-time withdrawal to empty a cash-transfer account would not.

ARTIFICIAL INTELLIGENCE (AI)

The science and technology of creating intelligent systems. Machine learning (ML) often enables AI systems, which apply data-derived predictions to automate decisions. While ML focuses on learning and prediction, AI applications often create, plan, or do something in the real world.[119] Automated decisions might be directly implemented (*e.g.*, in robotics) or suggested to a human decision-maker (*e.g.*, product recommendations in online shopping).

CENSORSHIP

The suppression of free speech by governments or private institutions based on the assumption that said speech is objectionable or offensive.[120] In addition to hard forms of censorship (handed down officially through laws and regulations), soft forms of censorship exist (applied through financial and/or reputational pressure).[121]

CIVIL LIBERTIES

Individual rights protected from unjust interference by governmental or other actors. In the United States, the first ten Amendments to the U.S. Constitution, known collectively as the Bill of Rights, enshrine these rights. Civil liberties include the right to the freedoms of expression and association and peaceful assembly, also recognized as universal human rights under the Universal Declaration of Human Rights.[122]

CYBERSECURITY

The prevention of damage to, protection of, and restoration of computers, electronic communications systems, electronic communications services, wire communication, and electronic communication, including information contained therein, to ensure its availability, integrity, authentication, confidentiality, and nonrepudiation.[123] As the *Cybersecurity Strategy* of the U.S. Department of Homeland Security (DHS) emphasizes: "Cybersecurity is not an end unto itself, and efforts to mitigate cybersecurity risks must also support international commerce, strengthen international security, and foster free expression and innovation."[124]

DATA LOCALIZATION LAWS

Laws that require data to be stored, processed, or handled within the borders of the country where the data originated. Many countries are adopting data-localization laws to avoid surveillance or interference by foreign governments or corporations. At the same time, data-localization laws can leave citizens and businesses with no means to avoid surveillance by the intelligence agencies of their own governments and hinder cross-border flows of data, which can have a negative effect on e-commerce and the development of an open, secure, and inclusive digital ecosystem.[125]

DATA PRIVACY

The right of an individual or group to maintain control over, and the confidentiality of, information about themselves, especially when that intrusion results from undue or illegal gathering and use of data about that individual or group.[126]

DATA PROTECTION

The practice of ensuring the protection of data from unauthorized access, use, disclosure, disruption, modification, or destruction, to provide confidentiality, integrity, and availability.[127]

DIGITAL AUTHORITARIANISM

The use of digital information technology by authoritarian regimes to surveil, repress, and manipulate domestic and foreign populations.[128]

DIGITAL DIVIDE

The distinction between those who have access to the Internet and can make use of digital communications services, and those who find themselves excluded from these services.[129] Often, one can point to multiple and overlapping digital divides, which stem from inequities in access, literacy, cost, or the relevance of services. Factors such as high cost and limited infrastructure often exacerbate digital divides.

DIGITAL ECONOMY

The use of digital and Internet infrastructure by individuals, businesses, and government to interact with each other, engage in economic activity, and access both digital and non-digital goods and services. As the ecosystem supporting it matures, the digital economy might grow to encompass all sectors of the economy—a transformation driven by both the rise of new services and entrants, as well as backward linkages with the traditional, pre-digital economy. A diverse array of technologies and platforms facilitate activity in the digital economy; however, much activity relies in some measure on the Internet, mobile phones, digital data, and digital payments.

DIGITAL ECOSYSTEM

The stakeholders, systems, and enabling environment that together empower people and communities to use digital technology to gain access to services, engage with each other, or pursue economic opportunities. A digital ecosystem is conceptually similar to, but broader than, a digital economy. Although certain aspects of the digital ecosystem have country-wide reach, other features differ across geographies or communities. The critical pillars of a digital ecosystem include the following: (1) sound enabling environment and policy commitment; (2) robust and resilient digital infrastructure; (3) capable digital service-providers and workforce (*e.g.*, both public and private institutions); and, (4) empowered end-users of digitally enabled services.

DIGITAL IDENTITY

The widely accepted *Principles on Identification*[130] define identity as "a set of attributes that uniquely describes an individual or entity." Digital identification (ID) systems often require registering individuals onto a computerized database and providing certain credentials (*e.g.*, identifying numbers, cards, digital certificates, *etc.*) as proof of identity. Government actors can set up these systems to create foundational, national ID programs, or donors or non-governmental organizations (NGOs) for functional purposes to identify beneficiaries, *e.g.*, for humanitarian assistance and service-delivery.

DIGITAL INFRASTRUCTURE

The foundational components that enable digital technologies and services. Examples of digital infrastructure include fiber-optic cables, cell towers, satellites, data centers, software platforms, and end-user devices.

DIGITAL LITERACY

The ability to "access, manage, understand, integrate, communicate, evaluate, and create information safely and appropriately through digital devices and networked technologies for participation in economic and social life. This may include competencies that are variously referred to as computer literacy, information and communications technology (ICT) literacy, information literacy, and media literacy."[131]

DIGITAL TECHNOLOGY

This *Strategy* uses the term "digital technology" not only to describe a type of technology but also to refer to the platforms, processes, and range of technologies that underpin modern ICT, including the Internet and mobile-phone platforms, as well as advanced data infrastructure and analytical approaches.

DIGITAL TOOL

Application of digital technologies to meet a specific human need. Digital tools differ from infrastructure in that they are geared toward a specific application, while infrastructure tends to be more general-purpose.

ANNEX III

DIGITAL TRADE (OR ELECTRONIC COMMERCE OR E-COMMERCE)

According to the World Trade Organization, the production, distribution, marketing, sale, or delivery of goods and services by electronic means.[132]

DISINFORMATION

A piece of information that is *intentionally* false or misleading and deliberately used by the producer to achieve a specific social, economic, and/or political objective. Disinformation is often confused with misinformation, which is false or misleading information shared by error or mistake.[133]

DOXING

The act of publishing personally identifiable information (PII) online without an individual's consent with the intent to cause harm to that individual's reputation and/or physical safety.[134]

HATE SPEECH

The use of speech to make direct attacks against an individual or a group of people based on a series of protected characteristics, such as race, ethnicity, nationality, religion, sex, sexual orientation, gender identity, and physical or mental ability.[135]

INCLUSIVE DEVELOPMENT

An approach to development that ensures all people are included, can participate fully in, and benefit from development efforts.[136]

INTERNET FREEDOM

According to the United States Government, the online exercise of human rights and fundamental freedoms regardless of frontiers or medium. The same rights that people have offline must also be protected online—in particular freedom of expression, which is applicable regardless of frontiers and through any media of one's choice.[137]

INTERNET OF THINGS

A global infrastructure for the information society that enables advanced services by interconnecting (physical and virtual) things based on existing and evolving interoperable information and communication technologies.[138]

MACHINE LEARNING (ML)

A set of methods that train computers to learn from data, where "learning" generally amounts to the detection of patterns or structures in data. ML approaches begin by finding patterns in a subset of existing data and use them to make predictions for new, unseen data.[139]

PARTNER

An organization or individual with which/whom the U.S. Agency for International Development collaborates to achieve mutually agreed upon objectives and to secure the participation of ultimate customers. Partners include host-country governments, private voluntary organizations, local and international non-governmental organizations, faith-based organizations, universities, other U.S. Government Departments and Agencies, the United Nations and other multilateral organizations, professional and business associations, and private businesses and individuals.[140]

PLATFORM

A group of technologies used as a base upon which other technologies can be built or applications and services run. For example, the Internet is a platform that enables web applications and services.

UNIVERSAL HUMAN RIGHTS

A set of rights inherent to all people regardless of place of birth, nationality, and/or citizenship, as defined by the Universal Declaration of Human Rights, including the rights to life, liberty, and security of person; freedom from slavery and torture; freedom of expression, association, and peaceful assembly; as well as the right to access work and education.[141]

VIOLENT EXTREMISM

Advocating, engaging in, preparing or otherwise supporting ideologically motivated violence to further social, economic, political, or religious objectives.[142]

Principles *for* Digital Development

DESIGN WITH THE USER

UNDERSTAND THE EXISTING ECOSYSTEM

DESIGN FOR SCALE

BUILD FOR SUSTAINABILITY

BE DATA DRIVEN

USE OPEN STANDARDS, OPEN DATA, OPEN SOURCE, AND OPEN INNOVATION

REUSE AND IMPROVE

ADDRESS PRIVACY AND SECURITY

BE COLLABORATIVE

More information on the Principles for Digital Development, including resources, implementation tips, and a current list of endorsing organizations is available at digitalprinciples.org.

ENDNOTES

1 World Bank Group, *World Development Report 2016: Digital Dividends* (Washington, D.C.: World Bank Group, 2016), http://www.worldbank.org/en/publication/wdr2016.

2 Klaus Schwab, "The Fourth Industrial Revolution," World Economic Forum (2017), https://www.weforum.org/agenda/2016/01/the-fourth-industrial-revolution-what-it-means-and-how-to-respond/.

3 Jonas Hjort and Jonas Poulsen, "The Arrival of Fast Internet and Employment in Africa," *American Economic Review* 109, no. 3 (March 2019): 1032-79, https://doi.org/10.1257/aer.20161385.

4 Jonathan Woetzel, et al., "Smart Cities: Digital Solutions for a More Livable Future," McKinsey Global Institute (2018), https://www.mckinsey.com/industries/capital-projects-and-infrastructure/our-insights/smart-cities-digital-solutions-for-a-more-livable-future; Sarah Rotz, et al., "Automated pastures and the digital divide: How agricultural technologies are shaping labour and rural communities," *Journal of Rural Studies*, Vol. 68, (May 2019), 112-122, https://www.sciencedirect.com/science/article/pii/S0743016718307769?via%3Dihub.

5 Erica Naone, "Why Crisis Maps Can Be Risky When There's Political Unrest," *MIT Technology Review*, (2011), https://www.technologyreview.com/s/424944/why-crisis-maps-can-be-risky-when-theres-political-unrest/; Robert Chesney and Danielle Citron, "Deepfakes and the New Disinformation War," *Foreign Affairs* (Jan/Feb 2019), https://www.foreignaffairs.com/articles/world/2018-12-11/deepfakes-and-new-disinformation-war; Amy Paul, Craig Jolley, and Aubra Anthony, "Reflecting the Past, Shaping the Future: Making AI Work for International Development," USAID (September 2018), https://www.usaid.gov/digital-development/machine-learning/AI-ML-in-development.

6 OECD, "Bridging the Gender Digital Divide: Include, Upskill, Innovate," (Paris: OECD, 2018), https://www.oecd.org/internet/bridging-the-digital-gender-divide.pdf.

7 DAI, "Cambodia—Development Innovations," accessed November 2019, https://www.dai.com/our-work/projects/cambodia-development-innovations.

8 U.S. Department of State and U.S. Agency for International Development, *Joint Strategic Plan FY 2018 - 2022*, (Washington, D.C.: U.S. Government, 2018), https://www.state.gov/joint-strategic-plan/.

9 White House, *National Cyber Strategy of the United States of America*, (2018), 24-26, https://www.whitehouse.gov/wp-content/uploads/2018/09/National-Cyber-Strategy.pdf; USAID, "USAID Policy Framework: Ending the Need for Foreign Assistance," (2019), https://www.usaid.gov/policyframework/documents/1870/usaid-policy-framework.

10 Mara Lemos Stein, "Ukraine Looks to Unmask Corruption with ProZorro E-Procurement," *Wall Street Journal*, May 19, 2016, https://blogs.wsj.com/riskandcompliance/2016/05/19/ukraine-looks-to-unmask-corruption-with-prozorro-e-procurement/.

11 Rowland Manthorpe, "From the Fires of Revolution, Ukraine is Reinventing Government," *Wired*, August 20, 2018, https://www.wired.co.uk/article/ukraine-revolution-government-procurement.

12 GSMA Connected Women Global Development Alliance, *Bridging the Gender Gap: Mobile Access and Usage in Low- and Middle-Income Countries*, (London: GSMA, 2015), https://www.gsma.com/mobilefordevelopment/wp-content/uploads/2016/02/Connected-Women-Gender-Gap.pdf.

13 Guillermo Babatz, "Sustained Effort, Saving Billions: Lessons from the Mexican Government's Shift to Electronic Payments," Better than Cash Alliance (November 2013), https://www.betterthancash.org/news/blogs-stories/digitization-of-payments-in-mexico-saves-billions.

14 Tavneet Suri and William Jack, "The Long-Run Poverty and Gender Impacts of Mobile Money," *Science*, Vol. 354, Issue 6317 Dec 9, 2016, 1288-1292, http://science.sciencemag.org/content/354/6317/1288.

15 James Manyika, Susan Lund, Marc Singer, Olivia White, and Chris Berry, "How Digital Finance Could Boost Growth in Emerging Economies," McKinsey Global Institute (2016), https://www.mckinsey.com/featured-insights/employment-and-growth/how-digital-finance-could-boost-growth-in-emerging-economies.

16 Susan Lund, James Manyika, Jonathan Woetzel, Jacques Bughin, Mekala Krishnan, Jeongmin Seong, and Mac Muir, "Globalization in Transition: The Future of Trade and Value Chains," McKinsey Global Institute (January 2019), https://www.mckinsey.com/featured-insights/innovation-and-growth/globalization-in-transition-the-future-of-trade-and-value-chains.

17 Stefaan G. Verhulst and Andrew Young, "Open Data in Developing Economies," The GovLab (July 2017), 45, http://odimpact.org/files/odimpact-developing-economies.pdf.

18 White House, *National Security Strategy of the United States of America*, (December 2017), https://www.whitehouse.gov/wp-content/uploads/2017/12/NSS-Final-12-18-2017-0905.pdf.

19 White House, *National Cyber Strategy*, (September 2018), 24-26, https://www.whitehouse.gov/wp-content/uploads/2018/09/National-Cyber-Strategy.pdf.

20 GSMA, "The Mobile Economy 2019," (2019), https://www.gsmaintelligence.com/research/?file=b9a6e6202ee1d5f787cfebb95d3639c5&download.

21 USAID, "Mobile Phones and Ebola: Preventing Disease Outbreaks with Information," YouTube (2017), https://www.youtube.com/watch?v=Ysuv7D348kk.

22 Jonathan Kourgialis, "Learning from Ebola: How Mobile Money Can Prevent Health Crises," *Closing the Digital Divide (mSTAR blog)* (July 2, 2018), https://mstarproject.wordpress.com/2018/07/02/how-mobile-money-can-prevent-health-crises/.

23 Joe Abass Bangura, "Saving Money, Saving Lives: A Case Study on the Benefits of Digitizing Payments to Ebola Response Workers in Sierra Leone," Better Than Cash Alliance (2016), https://www.betterthancash.org/tools-research/case-studies/saving-money-saving-lives-a-case-study-on-the-benefits-of-digitizing-payments-to-ebola-response-workers-in-sierra-leone.

24 Brenda Muwaga and Marc Mitchell, "Through eNutrition, a smart phone-based application, health workers provided treatment to children with severe acute malnutrition based on the child's past weight, past treatment, and guideline targets," Bulletin of the mHealth Compendium Volume 1 2012, (2012).

25 Saving Mothers Giving Life, "2018 Final Report: Results of a Five-Year Partnership to Reduce Maternal and Newborn Mortality," (2018), http://www.savingmothersgivinglife.org/docs/smgl-final-report.pdf.

26 The Government of the Philippines has adopted and scaled up the technology with its own resources.

27 William Jack and Tavneet Suri, "Risk Sharing and Transactions Costs: Evidence from Kenya's Mobile Money Revolution," *American Economic Review*, 104 (1) (2014): 183-223.

28 Tavneet Suri and William Jack, "The Long-Run Poverty and Gender Impacts of Mobile Money," *Science*, Vol. 354, Issue 6317 Dec 9, 2016, 1288-1292, http://science.sciencemag.org/content/354/6317/1288.

29 Data Impacts, "Improving Farmers' Income Through Market Price Information," *Agriculture and Environment, Case #9* (n/d), https://dataimpacts.org/wp-content/uploads/2015/06/market-data-raise-farmer-income.compressed.pdf.

30 Nathan Associates, "USAID Regional Trade and Market Alliances Project," Our Work, accessed November 2019, https://www.nathaninc.com/usaid-regional-trade-and-market-alliances-project/.

31 Better Than Cash Alliance, "The State of Digital Payments in the Philippines," (December 2019), https://www.betterthancash.org/tools-research/case-studies/country-diagnostic-the-philippines-2019-edition.

32 Karthik Muralidharan, Paul Niehaus, and Sandip Sukhtankar, "Improving Governance Through Biometric Authentication and Secure Payments in India," J-PAL (n/d), https://www.povertyactionlab.org/evaluation/improving-governance-through-biometric-authentication-and-secure-payments-india.

33 Ibid.

34 LandLinks, "Mobile Applications to Secure Tenure (MAST) Learning Platform," accessed November 2019, https://www.land-links.org/tool-resource/mobile-applications-to-secure-tenure-mast/.

35 USAID, "Pay-As-You Go Solar as a Driver of Financial Inclusion," (2017), https://www.usaid.gov/digital-development/paygo.

36 Jake Bright, "Solar startup M-KOPA leapfrogs Africa's electricity grid," TechCrunch.com (n/d), https://techcrunch.com/2016/04/28/solar-startup-m-kopa-leapfrogs-africas-electricity-grid/.

37 All Children Reading, "Project Evaluations," All Children Reading (n/d), https://allchildrenreading.org/research/project-evaluations/.

38 All Children Reading, "Sign on for Literacy Prize," All Children Reading (n/d), https://allchildrenreading.org/challenge/sign-literacy-prize/?utm_source=Test&utm_campaign=0bf0d4c180-EMAIL_CAMPAIGN_2019_05_20_07_17&utm_medium=email&utm_term=0_e92f60061e-0bf0d4c180-97894227.

39 U.S. Global Development Lab, "Turning Data into Action," USAID (n/d), https://www.usaid.gov/sites/default/files/documents/15396/Data2Action.pdf.

40 Amy Paul, Craig Jolley, and Aubra Anthony, "Reflecting the Past, Shaping the Future: Making AI Work for International Development," USAID (September 2018), https://www.usaid.gov/digital-development/machine-learning/AI-ML-in-development.

41 Mark Wronkiewicz, "Mapping the Electric Grid," *Development Seed Blog*, February 14, 2018, https://medium.com/devseed/mapping-the-electric-grid-fe29f041d54e.

42 Jun Wang, Jingwei Song, Mingquan Chen, and Zhi Yang, "Road network extraction: A neural-dynamic framework based on deep learning and a finite state machine," *Int. J. Remote Sensing* 36 (12) (June 2015):3144-3169, https://www.tandfonline.com/doi/abs/10.1080/01431161.2015.1054049.

43 EQUALS Research Group, "Taking Stock: Data and Evidence on Gender Equality in Digital Access, Skills and Leadership," EQUALS Global Partnership, (2019), https://www.itu.int/en/action/gender-equality/Documents/EQUALS%20Research%20Report%202019.pdf.

44 Sarah Myers West, Meredith Whittaker, and Kate Crawford, "Discriminating Systems: Gender, Race, and Power in AI," AI NOW Institute (2019), https://ainowinstitute.org/ discriminatingsystems.html.

45 White House, "Executive Order on Maintaining American Leadership in Artificial Intelligence," February 11, 2019, https://www.whitehouse.gov/presidential-actions/executive-order-maintaining-american-leadership-artificial-intelligence/; Will Knight, "America and its Economic Allies Have Announced Five "Democratic" Principles for AI," *MIT Technology Review* (2019), https://www.technologyreview.com/f/613573/america-and-its-economic-allies-announce-a-democratic-vision-for-ai/.

46 OECD, "OECD Principles on AI," accessed November 2019, https://www.oecd.org/going-digital/ai/principles/.

47 Amy Paul, Craig Jolley, and Aubra Anthony, "Reflecting the Past, Shaping the Future: Making AI Work for International Development," USAID (September 2018), https://www.usaid.gov/digital-development/machine-learning/AI-ML-in-development.

48 Vyjayanti Desai, Anna Diofasi, and Jing Lu, "The global identification challenge: Who are the 1 billion people without proof of identity?" *World Bank Voices Blog*, (April 2018), https://blogs.worldbank.org/voices/global-identification-challenge-who-are-1-billion-people-without-proof-identity.

49 White House, *National Cyber Strategy*, (September 2018), https://www.whitehouse.gov/wp-content/uploads/2018/09/National-Cyber-Strategy.pdf.

50 Adrian Shahbaz and Allie Funk, "Freedom on the Net 2019: The Crisis of Social Media," Freedom House (2019), https://www.freedomonthenet.org/report/freedom-on-the-net/2019/the-crisis-of-social-media.

51 See, for example, Steven Feldstein, "The Road to Digital Unfreedom: How Artificial Intelligence Is Reshaping Repression," *Journal of Democracy*, vol. 30, no. 1 (2019), 40–52.

52 Amy Hawkins, "Beijing's Big Brother Tech Needs African Faces," *Foreign Policy*, July 24, 2018, https://foreignpolicy.com/2018/07/24/beijings-big-brother-tech-needs-african-faces/; Angus Berwick, "How ZTE helps Venezuela create China-style social control," *Reuters*, November 14, 2018, https://www.reuters.com/investigates/special-report/venezuela-zte/; Dusan Stojanovic, "Chinese snooping tech spreads to nations vulnerable to abuse," *Associated Press*, October 17, 2019, https://apnews.com/9fd1c38594444d44acfe25ef5f7d6ba0.

53 White House, "National Strategy for Counterterrorism of the United States of America," (2018), https://www.whitehouse.gov/wp-content/uploads/2018/10/NSCT.pdf.

54 USAID, "Policy on Countering Violent Extremism through Development Assistance."

55 U.S. Department of State and USAID, Joint Strategy on *Countering Violent Extremism*, (May 2016), https://www.usaid.gov/sites/default/files/documents/1866/FINAL%20--%20State%20and%20USAID%20Joint%20Strategy%20on%20Countering%20Violent%20Extremism%20%28May%202016%29.pdf.

56 Freedom on the Net, "The Crisis of Social Media," (2019), https://www.freedomonthenet.org/report/freedom-on-the-net/2019/the-crisis-of-social-media.

57 Peter Warren Singer, "Insurgency in 2030: A Primer on the Future of Technology and COIN," (Washington, D.C.: New America, 2019).

58 White House, *National Cyber Strategy*, (September 2018), https://www.whitehouse.gov/wp-content/uploads/2018/09/National-Cyber-Strategy.pdf.

59 U.S. Department of State and U.S. Agency for International Development, *Joint Strategic Plan FY 2018-2022*, (February 2018), https://www.usaid.gov/sites/default/files/documents/1870/JSP_FY_2018_-_2022_FINAL.pdf.

60 Harry Surden, "Structural Rights in Privacy," *SMU Law Review,* Vol. 60 (December 2007), 1605-1629, https://papers.ssrn.com/sol3/papers.cfm?abstract_id=1004675.

61 Latanya Sweeney, "Simple demographics often identify people uniquely," Carnegie Mellon University, Data-Privacy Working Paper 3 (2000), https://dataprivacylab.org/projects/identifiability/paper1.pdf.

62 Frank Luerweg, "The Internet Knows You Better Than Your Spouse Does," *Scientific American*, March 14, 2019, https://www.scientificamerican.com/article/the-internet-knows-you-better-than-your-spouse-does/.

63 To publicly identify or publish private information about (someone) especially as a form of punishment or revenge (https://www.merriam-webster.com/dictionary/dox)

64 Pavel Polityuk, Oleg Vukmanovic, and Stephen Jewkes, "Ukraine's power outage was a cyber attack: Ukrenergo," *Reuters*, January 18, 2017, https://www.reuters.com/article/us-ukraine-cyber-attack-energy-idUSKBN1521BA.

65 Nicole Perlroth, Mark Scott, and Sheera Frenkel, "Cyberattack Hits Ukraine Then Spreads Internationally," *The New York Times*, June 27, 2017, https://www.nytimes.com/2017/06/27/technology/ransomware-hackers.html.

66 Joseph Marks, "The Cybersecurity 202: A bank wants to recover the $81 million North Korea allegedly stole. It won't be easy," *The Washington Post*, February 5, 2019, https://www.washingtonpost.com/news/

powerpost/paloma/the-cybersecurity-202/2019/02/05/the-cybersecurity-202-a-bank-wants-to-recover-the-81-million-north-korea-stole-it-won-t-be-easy/5c58842f1b326b66eb09860f/.

67 U.S. Department of State and U.S. Agency for International Development, *Joint Strategic Plan FY 2018-2022*, (February 2018), 31, https://www.usaid.gov/sites/default/files/documents/1870/JSP_FY_2018_-_2022_FINAL.pdf.

68 Cameron Kerry, "Why Protecting Privacy is a Losing Game Today—and How to Change the Game," Brookings Institution (July 2018), https://www.brookings.edu/research/why-protecting-privacy-is-a-losing-game-today-and-how-to-change-the-game/; Iga Kozlowska, "Facebook and Data Privacy in the Age of Cambridge Analytica," Jackson School of International Studies (April 2018), https://jsis.washington.edu/news/facebook-data-privacy-age-cambridge-analytica/.

69 World Bank Group, *World Development Report 2016: Digital Dividends*, (Washington, DC: World Bank Group, 2016) 55-56, http://www.worldbank.org/en/publication/wdr2016.

70 Tavneet Suri and William Jack, "The Long-Run Poverty and Gender Impacts of Mobile Money," *Science*, Vol. 354, Issue 6317 Dec 9, 2016, 1288-1292, http://science.sciencemag.org/content/354/6317/1288.

71 Luigi Zingales and Filippo Maria Lancieri, "Managing the Economic and Social Impact of the Digital Revolution," University of Chicago ProMarket Blog, May 15, 2019, https://promarket.org/managing-the-economic-and-social-impact-of-the-digital-revolution/; OECD, "Rethinking Antitrust Tools for Multi-Sided Platforms 2018," (2018), https://www.oecd.org/daf/competition/Rethinking-antitrust-tools-for-multi-sided-platforms-2018.pdf; *The Economist*, "Market concentration can benefit consumers, but needs scrutiny," (2017), https://www.economist.com/finance-and-economics/2017/08/31/market-concentration-can-benefit-consumers-but-needs-scrutiny; Michael Pisa and John Polcari, "Governing Big Tech's Pursuit of the "Next Billion Users," Center for Global Development (2019), https://www.cgdev.org/publication/governing-big-techs-pursuit-next-billion-users.

72 Samuel Woolley and Philip Howard, eds., "Computational Propaganda: Political Parties, Politicians, and Political Manipulation on Social Media," Oxford Internet Institute, (2018), https://comprop.oii.ox.ac.uk/research/computational-propaganda-the-book/.

73 Himanshu Zade, et al., "From Situational Awareness to Actionability: Towards Improving the Utility of Social Media Data for Crisis Response," *Proceedings of the ACM on Human-Computer Interaction 2*, CSCW, Article 195, 5 (November 2018), https://doi.org/10.1145/3274464.

74 Robin Wilson, et al,, "Rapid and Near Real-Time Assessments of Population Displacement Using Mobile Phone Data Following Disasters: The 2015 Nepal Earthquake," *PLOS Currents Disasters*, (Feb 24, 2016), http://doi.org/10.1371/currents.dis.d073fbece328e4c39087bc086d694b5c.

75 Sarah Bailey, "Electronic transfers in humanitarian assistance and uptake of financial services: A synthesis of ELAN case studies," Humanitarian Policy Group, (2017), https://www.odi.org/publications/10769-electronic-transfers-humanitarian-assistance-and-uptake-financial-services.

76 Teresa Welsh, "Biometrics disagreement leads to food aid suspension in Yemen," DevEx, (June 24, 2019), https://www.devex.com/news/biometrics-disagreement-leads-to-food-aid-suspension-in-yemen-95164.

77 White House, "National Cyber Strategy," (September 2018), 12, https://www.whitehouse.gov/wp-content/uploads/2018/09/National-Cyber-Strategy.pdf.

78 Beatrice Berton, "The Dark Side of the Web: ISIL's One-Stop Shop?" *European Union Institute for Security Studies* (2015), https://www.files.ethz.ch/isn/192064/Alert_30_The_Dark_Web.pdf; Daniel Byman, "An Intelligence Reserve Corps to Counter Terrorist Use of the Internet," Hoover Institution (2018), https://www.hoover.org/research/intelligence-reserve-corps-counter-terrorist-use-internet.

79 WTO, "World Trade Statistical Review 2018," (2018), https://www.wto.org/english/res_e/statis_e/wts2018_e/wts18_toc_e.htm.

80 Technologists refer to this as Conway's Law, which states that organizations tend to produce technology systems whose structure mirrors their own communications structure. Melvin Conway, "How Do Committees Invent?" (April 1968), http://www.melconway.com/Home/pdf/committees.pdf.

81 Larissa Fast and Adele Waugaman, "Fighting Ebola with Information: Learning From Data and Information Flows in the West Africa Ebola Response," (Washington, D.C.: USAID, 2016), https://www.usaid.gov/sites/default/files/documents/15396/FightingEbolaWithInformation.pdf.

82 Thomas Lammer, José Antonio García, and Sacha Polverini, "Establishing Payments Interoperability: Coordination Is Key," World Bank Blogs, September 26, 2016, http://blogs.worldbank.org/psd/establishing-payments-interoperability-coordination-key; Massimo Cirasino, Thomas Lammer, and Harish Natarajan, "Solving Payments Interoperability for Universal Financial Access," World Bank Blogs, February 25, 2016, http://blogs.worldbank.org/psd/solving-payments-interoperability-universal-financial-access; Charles Niehaus and William Cook, "Balancing the Economics of Interoperability in Digital Finance," CGAP Blog, January 23, 2018, https://www.cgap.org/blog/balancing-economics-interoperability-digital-finance.

83 Digital Principles, "Homepage," Principles for Digital Development, accessed November 2019, https://digitalprinciples.org/.

84 Adele Waugaman, "From Principle to Practice: Implementing the Principles for Digital Development," Principles for Digital Development (Washington, D.C.: The Principles for Digital Development Working Group, January 2016), https://digitalprinciples.org/wp-content/uploads/From_Principle_to_Practice_v5.pdf.

85 White House, *National Cyber Strategy*, (September 2018), 2, https://www.whitehouse.gov/wp-content/uploads/2018/09/National-Cyber-Strategy.pdf.

86 U.S. National Archives, "The Constitution of the United States: Bill of Rights," (September 25, 1789), https://www.archives.gov/founding-docs/bill-of-rights-transcript.

87 United Nations, "Universal Declaration of Human Rights," (December 10, 1948), https://www.un.org/en/universal-declaration-human-rights/.

88 Vietnam: Euan McKirdy, "'Stalinist' Vietnamese cybersecurity law takes effect, worrying rights groups and online campaigners," CNN.com, January 2, 2019, https://www.cnn.com/2019/01/02/asia/vietnam-cybersecurity-bill-intl/index.html; Thailand: TechCrunch.com, "Thailand passes controversial cybersecurity law that could enable government surveillance," (n/d), https://techcrunch.com/2019/02/28/thailand-passes-controversial-cybersecurity-law/; China: Jack Wagner, "China's Cybersecurity Law: What You Need to Know," *The Diplomat*, June 1, 2017, https://thediplomat.com/2017/06/chinas-cybersecurity-law-what-you-need-to-know/.

89 USAID, "Local Systems: A Framework for Supporting Sustained Development," (April 2014), https://www.usaid.gov/policy/local-systems-framework.

90 USAID, "Policy Framework," (April 2019), https://www.usaid.gov/policyframework/documents/1870/usaid-policy-framework.

91 USAID, "Risk-Appetite Statement," (June 2018), https://www.usaid.gov/policy/risk-appetite-statement. Developed and maintained by the Risk Management Council (RMC); USAID, "Governance Charter for Enterprise Risk Management and Internal Control at USAID: A Mandatory Reference for Automated Directives System Chapter 596," (August 2017), https://www.usaid.gov/sites/default/files/documents/1868/596mab.pdf.

92 USAID, "Risk-Appetite Statement," (June 2018), 8-9, https://www.usaid.gov/policy/risk-appetite-statement.

93 Ibid, 21.

94 USAID, Local Systems: *A Framework for Supporting Sustained Development* (Washington, D.C., 2014), https://www.usaid.gov/policy/local-systems-framework.

95 USAID, "Procurement Executive's Bulletin No. 2014-06," (August 6, 2014), https://www.usaid.gov/sites/default/files/peb2014_06.pdf.

96 USAID, "Automated Directives System (ADS) Chapter 579mab: Activity Location Data," (July 31, 2018), https://www.usaid.gov/ads/policy/500/579mab.

97 Vital Wave & Caribou Digital, "Digital Economies In Emerging Markets," Digital Economies in Emerging Markets (December 2014), http://vitalwave.com/wp-content/uploads/2015/09/Digital-Economies-In-Emerging-Markets-20141218.pdf.

98 Nicholas Diakopolous, *et al*. "Principles for Accountable Algorithms and a Social Impact Statement for Algorithms," (n/d), https://www.fatml.org/resources/principles-for-accountable-algorithms; Diego Molano Vega, "Colombia's Digital Agenda: Successes and the Challenges Ahead," in *The Global Information Technology Report 2013*, World Economic Forum (Geneva: World Economic Forum, 2013), http://www3.weforum.org/docs/GITR/2013/GITR_Chapter2.1_2013.pdf (Although this plan has changed since the Colombian national election in 2018, funding is still going toward this initiative); Data protection-India's evolving data-protection debate/laws, Sindhuja Balaji, "India Finally Has A Data Privacy Framework — What Does It Mean For Its Billion-Dollar Tech Industry?" Forbes.com, August 3, 2018, https://www.forbes.com/sites/sindhujabalaji/2018/08/03/india-finally-has-a-data-privacy-framework-what-does-it-mean-for-its-billion-dollar-tech-industry/#1c0a620470fe and https://www.pwc.in/assets/pdfs/publications/2018/privacy-in-the-data-economy.pdf; Privacy-GDPR, Matt Burgess, "What is GDPR? The Summary Guide to GDPR Compliance in the UK," Wired.com, January 21, 2019, https://www.wired.co.uk/article/what-is-gdpr-uk-eu-legislation-compliance-summary-fines-2018 and https://ethicsinaction.ieee.org/.

99 USAID, *Local Systems: A Framework for Supporting Sustained Development* (Washington, D.C., 2014), https://www.usaid.gov/policy/local-systems-framework.

100 USAID, "Discussion Note: Adaptive Management," (January 2018), https://usaidlearninglab.org/sites/default/files/resource/files/dn_-_adaptive_management.pdf.

101 Adele Waugaman, "From Principle to Practice: Implementing the Principles for Digital Development," Principles for Digital Development (Washington, D.C.: The Principles for Digital Development Working Group, January 2016), https://digitalprinciples.org/wp-content/uploads/From_Principle_to_Practice_v5.pdf.

102 USAID, "Glossary of Automated Directive Systems Terms," accessed November 2019, https://www.usaid.gov/who-we-are/agency-policy/glossary-ads-terms.

103 OMB M-16-21, "Federal Source Code Policy: Achieving Efficiency, Transparency, and Innovation through Reusable and Open Source Software," https://sourcecode.cio.gov/; and DIAL Research, "SDG Digital Investment Framework and Call to Action," Digital Impact Alliance (September 2018), https://digitalimpactalliance.org/resource/dial-itu-sdg-digital-investment-framework/.

104 USAID, "USAID Education Policy," (2018), https://www.usaid.gov/education/policy.

105 Integra Government Services International, "Final

Report for the Africa Universal Service and Access Fund Support Project," (October 18, 2013), 1, http://www.integrallc.com/wp-content/uploads/2017/09/GBI_Integra_Final-Report-for-the-Africa-Universal-Service-and-Access-Fund-Support-Project.pdf.

106 USAID, "Connecting People. Transforming Nations," (n/d) https://www.usaid.gov/digital-development/digital-inclusion/connecting-people-transforming-nations.

107 International Telecommunication Union, "SDG Digital Investment Framework: A Whole-of-Government Approach to Investing in Digital Technologies to Achieve the SDGs," ITU and DIAL (2019), https://www.itu.int/dms_pub/itu-d/opb/str/D-STR-DIGITAL.02-2019-PDF-E.pdf.

108 Higher Engineering Education Alliance Program (HEEAP), https://heeap.org/. Accessed January 15, 2020.

109 Science, Technology, Research and Innovation for Development (STRIDE) Program, https://stride.org.ph/. Accessed January 15, 2020.

110 *E.g.*, by Executive Order, Federal Departments and Agencies and their contractors are subject to the requirements of the National Archives and Records Administration (NARA) under Section 2002 of Title 32 of the Code of Federal Regulations (CFR), CONTROLLED UNCLASSIFIED INFORMATION (CUI), which provides the Federal standard for the processing and dissemination of Federal information that is not classified. A pending amendment to the Federal Acquisition Regulation (FAR) to implement NARA's CUI regulation will establish policy and new clauses for all Federal contractors to require security and privacy controls for Federal information systems and organizations as well as to protect CUI in non-Federal systems and organizations, as specified by NARA.

111 The Digital Ecosystem Fund still requires capitalization by the Agency, which USAID expects to do over two or three Fiscal Years.

112 Chapter 200.3.3.3 of the Automated Directives System (ADS) outlines the Vision Paper: https://www.usaid.gov/ads/policy/200/200.

113 Details on the New Partnership Initiative appear at https://www.usaid.gov/npi.

114 The USAID Acquisition and Assistance Strategy is available at https://www.usaid.gov/work-usaid/how-to-work-with-usaid/acquisition-and-assistance-strategy.

115 International Telecommunication Union, "Measuring Digital Development: Facts and Figures 2019," accessed November 2019, https://itu.foleon.com/itu/measuring-digital-development/gender-gap/.

116 U.S. Government, *Advancing Protection and Care for Children in Adversity: A U.S. Government Strategy for Children in Adversity (2019-2023)*, (n/d), https://www.childreninadversity.gov/docs/default-source/default-document-library/apcca-strategy-final-web.pdf?sfvrsn=4.

117 See Chapter 579 of the Automated Directives System (ADS) for guidance around programmatic data use at USAID. See ADS Chapter 201 for guidance on data-informed planning throughout USAID's Program Cycle. See ADS Chapter 200mbe on guidance around informed consent. See ADS Chapter 508 for guidance around data privacy.

118 USAID, "Procurement Executive's Bulletin No. 2014-06," (August 6, 2014), https://www.usaid.gov/sites/default/files/peb2014_06.pdf.

119 Adapted from Amy Paul, Craig Jolley, and Aubra Anthony, "Reflecting the Past, Shaping the Future: Making AI Work for International Development," USAID (September 2018), https://www.usaid.gov/digital-development/machine-learning/AI-ML-in-development.

120 Adapted from Kathleen Ann Ruane, "Freedom of Speech and Press: Exceptions to the First Amendment," Congressional Research Service, (September 8, 2014), https://fas.org/sgp/crs/misc/95-815.pdf.

121 Adapted from Open Society Institute, "The Growing Threat of Soft Censorship," (December 12, 2005), https://www.justiceinitiative.org/uploads/8a661bc6-9ff8-4570-b79f-d52729b65c0d/threat_20051205.pdf.

122 Adapted from https://www.archives.gov/founding-docs/bill-of-rights-transcript and Universal Declaration of Human Rights.

123 National Institute of Standards and Technology (NIST), U.S. Department of Commerce "Cybersecurity," accessed November 2019, https://csrc.nist.gov/glossary/term/cybersecurity.

124 U.S. Department of Homeland Security, *Cybersecurity Strategy* (2018), https://www.dhs.gov/publication/dhs-cybersecurity-strategy.

125 Adapted from ITI, "Forced Localization," accessed November 2019, https://www.itic.org/policy/forced-localization/data-localization and http://e15initiative.org/wp-content/uploads/2015/09/E15-Policy-Brief-Crosby-Final.pdf.

126 Adapted from NIST Computer Security Resource Center, "Privacy," accessed December 2019, https://csrc.nist.gov/glossary/term/privacy.

127 Adapted from NIST Computer Security Resource Center, "Information Security," accessed December 2019, https://csrc.nist.gov/glossary/term/information-security.

128 Alina Polyakova and Chris Meserole, "Exporting digital authoritarianism: The Russian and Chinese models," Foreign Policy at Brookings, (n/d), https://www.brookings.edu/wp-content/uploads/2019/08/FP_20190827_digital_authoritarianism_polyakova_meserole.pdf.

129 Adapted from the International Centre for Technical and Vocational Education and Training (UNEVOC) of the United Nations Educational, Scientific, and Cultural Organization (UNESCO), "Digital Divide," accessed December 2019, https://unevoc.unesco.org/

go.php?q=TVETipedia+Glossary+A-Z&term=Digital+divide.

130 The World Bank, "Principles on Identification for Sustainable Development: Toward the Digital Age," (February 2, 2018), http://documents.worldbank.org/curated/en/213581486378184357/Principles-on-identification-for-sustainable-development-toward-the-digital-age.

131 Adapted from UNESCO, "A Global Framework of Reference on Digital Literacy Skills for Indicator 4.4.2," (June 2018), http://uis.unesco.org/sites/default/files/documents/ip51-global-framework-reference-digital-literacy-skills-2018-en.pdf.

132 World Trade Organization, "Electronic Commerce," accessed November 2019, https://www.wto.org/english/tratop_e/ecom_e/ecom_e.htm.

133 Adapted from Caroline Jack, "Lexicon of Lies: Terms for Problematic Information," Data and Society Research Institute, (n/d), https://datasociety.net/pubs/oh/DataAndSociety_LexiconofLies.pdf.

134 Adapted from Claire Wardle, "Information Disorder: The Essential Glossary," Shorenstein Center on Media, Politics, and Public Policy, Harvard University, (July 2018), https://firstdraftnews.org/wp-content/uploads/2018/07/infoDisorder_glossary.pdf.

135 Adapted from Article 19, "'Hate Speech' Explained: A Toolkit," (2015), https://www.article19.org/data/files/medialibrary/38231/'Hate-Speech'-Explained---A-Toolkit-%282015-Edition%29.pdf.

136 Adapted from USAID, "Suggested Approaches for Integrating Inclusive Development Across the Program Cycle and in Mission Operations (ADS 201 Additional Help)," (July 2018), https://usaidlearninglab.org/sites/default/files/resource/files/additional_help_for_ads_201_inclusive_development_180726_final_r.pdf.

137 White House, *National Cyber Strategy*, (September 2018), 24, https://www.whitehouse.gov/wp-content/uploads/2018/09/National-Cyber-Strategy.pdf.

138 International Telecommunications Union, "Overview of the Internet of Things," accessed November 2019, https://www.itu.int/rec/T-REC-Y.2060-201206-I/en.

139 Adapted from Amy Paul, Craig Jolley, and Aubra Anthony, "Reflecting the Past, Shaping the Future: Making AI Work for International Development," USAID (September 2018), https://www.usaid.gov/digital-development/machine-learning/AI-ML-in-development.

140 USAID, "Glossary of ADS Terms," accessed November 2019, https://www.usaid.gov/who-we-are/agency-policy/glossary-ads-terms.

141 Adapted from United Nations "Universal Declaration of Human Rights," (December 10, 1948), https://www.un.org/en/universal-declaration-human-rights/.

142 USAID, "Countering Violent Extremism through Development Assistance," (forthcoming).