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DIGITAL ECOSYSTEM COUNTRY ASSESSMENT (DECA)

Panama

APRIL 2024

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ACRONYMS

	English	Spanish
2IPD	Integrated Index for Postal Development	Índice Integral de Desarrollo Postal
A4AI	Alliance for Affordable Internet	Alianza por el Internet Asequible
ABP	Bank Association of Panama	Asociación Bancaria de Panamá
ACODECO	Panama Consumer Protection and Competition Defense Authority	Autoridad de Protección al Consumidor y Defensa de la Competencia
AIG	National Authority for Government Innovation	Autoridad Nacional Para la Innovación Gubernamental
AML/CFT	Anti-Money Laundering and Combating the Financing of Terrorism	Lucha contra el blanqueo de capitales y combate contra la financiación del terrorismo
AMPYME	Micro, Small and Medium Enterprise Authority	Autoridad de la Micro, Pequeña y Mediana Empresa
ANTAI	National Authority for Transparency and Access to Information	Autoridad Nacional de Transparencia y Acceso a la Información
APEDE	Panamanian Association of Business Executives	Asociación Panameña de Ejecutivos de Empresa
ASEP	National Public Services Authority	Autoridad Nacional de Servicios Públicos
B2C	Business-to-Consumer	Negocios-a-Consumidores
BNP	National Bank of Panama	Banco Nacional de Panamá
BSO	Business Support Organization	Organización de Apoyo Empresarial
CAPATEC	Panamanian Chamber of Information Technologies, Innovation and Telecommunications	Cámara Panameña de Tecnologías de Información, Innovación y Telecomunicaciones
CCIYAP	Panamanian Chamber of Commerce, Industries and Agriculture	Cámara De Comercio Industrias y Agricultura De Panamá
CDCS	USAID Country Development Cooperation Strategy	Estrategia de USAID de Cooperación para el Desarrollo del País
CDN	Content Delivery Network	Red de entrega de contenidos
CDPSE	Certified Data Privacy Solutions Engineers	Ingenieros certificados en soluciones de privacidad de datos
CEPAL	United Nations Economic Commission for Latin America and the Caribbean	Comision Económica parea América Latina y el Caribe
CERT	Computer Emergency Response Team	Equipo de respuesta a emergencias informáticas
CISA	Certified Information Systems Auditors	Auditores certificados en sistemas de información
CISM	Certified Information Security Manager	Gerente certificado de seguridad de la información
CMM	Cybersecurity Maturity Model	Modelo de Madurez de Ciberseguridad

	English	Spanish
CNA	National Bar Association	Colegio Nacional de Abogados
CONAPE	National College of Journalists of Panama	Colegio Nacional de Periodistas de Panamá
CONEP	National Council of Private Enterprise	Consejo Nacional de la Empresas Privada
CONVIMU	National Committee against the Violence against Women	Comité Nacional contra la Violencia en la Mujer
Core	Core Network	Red central
CoSPAE	Private Sector Council for Educational Assistance	Consejo del Sector Privado Para la Asistencia Educacional
CoST	Infrastructure Transparency Initiative	Iniciativa de Transparencia en el Sector de Construcción
CRISC	Certified Experts in Risk and Information System Control	Expertos certificados en control de riesgos y sistemas de información
CSIRT	Computer Security Incident Response Team	Equipo de Respuesta a Incidentes de Seguridad
CSO	Civil Society Organizations	Organizaciones de sociedad civil
CWP	Cable & Wireless Panama	Cable & Wireless Panama
DCCP	Digital Connectivity and Cybersecurity Partnership	Alianza de Conectividad Digital y Ciberseguridad
DECA	Digital Ecosystem Country Assessment	Evaluación País del Ecosistema Digital
DFC	Development Finance Corporation	Coorporación Financiera de Desarrollo
DFS	Digital Financial Services	Servicios financieros digitales
DFTZ	Digital Free Trade Zones	Zonas de Libre Comercio Digital
DGI	General Revenue Directorate of the Ministry of Economy and Finance of Panama	Dirección General de Ingresos del Ministerio de Economía y Finanzas de Panamá
DNA	Digital National Agenda	Agenda Digital de Panamá
DO	Development Objective	Objetivos para el Desarrollo
DUCA-F	Central American Single Declaration Form for the Trade of Merchandise Originating from the Central American Region	Declaración Única centroamericana para el comercio de mercancías originarias de la región centroamericana
eLAC	Digital Agenda for Latin America and the Caribbean	Agenda Digital para América Latina y el Caribe
FCD	Community DOJO Foundation	Fundacion Comunidad DOJO
FinTech	Financial Technology	Finanzas mediadas por tecnología
FSEDPIS	Superior Prosecutor's Office Specialized in Crimes against Intellectual Property and Computer Security	Fiscalia Superior Especializada en Delitos contra la Propiedad Intelectual y Seguridad Informatica
FSP	Financial Service Provider	Proveedor de servicios financieros

	English	Spanish
GDPR	General Data Protection Regulation	Reglamento General de Protección de Datos
GEM	Global Entrepreneurship Monitor	Monitor Global de Emprendimiento
GoP	Government of Panama	Gobierno de Panamá
GTMI	GovTech Maturity Index	Indice de Madurez de GovTec
IADB	Inter-American Development Bank	Banco Interamericano de Desarrollo
ICANN	Internet Corporation for Assigned Names and Numbers	Corporación de Internet para la Asignación de Nombres y Números
ICI	Computer Compliance Indicators	Indicadores de cumplimiento informático
ICT	Information and Communications Technology	Tecnologías de la Información y Comunicaciones
ID	Digital Identity	Identidad Digital
IEA	Innovation and Entrepreneurship Alliance	Alianza de Emprendimiento e Innovación
IEEE	Institute of Electrical and Electronics Engineers	Instituto de Ingenieros Eléctricos y Electrónicos
IFARHU	Institute for the Training and Use of Human Resources	Instituto para la Formación y Aprovechamiento de Recursos Humanos
IGF	Internet Governance Forum	Foro de Gobernanza de Internet
IMELCF	Legal Medicine and Forensic Sciences	Medicina Legal y Ciencias Forenses
INADEH	National Institute of Vocational Training for Human Development	Instituto Nacional de Formación Profesional y Capacitación para el Desarrollo Humano
INAGOB	Digital Government Progress Indicators	Indicadores de Progreso del Gobierno Digital
INEC	National Institute of Statistics and Census	Instituto Nacional de Estadística y Censo
IOM	International Organization for Migration	Organización Internacional para las Migraciones
IPACOOP	Panamanian Cooperative Autonomous Institute	Instituto Panameño Autónomo Cooperativo
IPANDETEC	Panamanian Institute of Law and New Technologies	Instituto Panamericano de Derecho y Nuevas Tecnologías
ISP	Internet Service Provider	Proveedor de Servicios de Internet
ITSE	Specialized Higher Technical Institute	Instituto Tecnico Superior Especializado
IXP	Internet Exchange Point	Punto de Intercambio de Internet
LACNIC	Latin America and Caribbean Network Information Centre	Registro de Direcciones de Internet de América Latina y Caribe
LEO	Low-Earth Orbit	Órbita Terrestre Baja
MANRS	Mutually Agreed Norms for Routing Security	Normas Mutuamente Acordadas para la Seguridad del Enrutamiento
MEF	Ministry of Economy and Finances of Panama	Ministerio de Economía y Finanzas de Panamá

	English	Spanish
MFI	Microfinance Institution	Institución de microfinanzas
MICI	Ministry of Commerce and Industries of Panama	Ministerio de Comercio e Industrias de Panamá
MIDES	Ministry of Social Development of Panama	Ministerio de Desarrollo Social de Panamá
MINSA-CSS	Ministry of Health of Panama, and Social Security Fund	Ministerio de Salud y Caja del Seguro Social
MITRADEL	Ministry of Health of Panama, and Social Security Fund	Ministerio de Trabajo y Desarrollo Laboral
MNC	Multinational Companies	Companías Multinacionales
MNO	Mobile Network Operator	Operador de Red Móvil
MSME	Micro-, Small, and Medium-Sized Enterprises	Micro, pequeñas y medianas empresas
MuNet	Efficient and Transparent Municipalities	Municipios Eficientes y Transparentes
NCD	National Cybersecurity Directorate	Dirección Nacional de Ciberseguridad
NCG	Government Computer Cloud	Nube Computacional Gubernamental
NCSS	National Cybersecurity Strategy	Estrategia Nacional de Ciberseguridad
NGO	Non-Governmental Organization	Organización no gubernamental
NISC	National Interoperability and Security Committee	Comité Nacional de Interoperabilidad y Seguridad
NTFC	National Trade Facilitation Committee	Comité Nacional de Facilitación de Comercio
O-RAN	Open Radio Access Network	Red abierta de acceso a radio
OAS	Organization of American States	Organización de los Estados Americanos
OCCRP	Organized Crime and Corruption Reporting Project	Proyecto de denuncia de corrupción y crimen organizado
OECD	Organization for Economic Co-operation and Development	Organización para la Cooperación y Desarrollo Económico
ONPAR	National Office for the Attention of Refugees	Oficina Nacional para la Atención de Refugiados
PEMIP	Economic Empowerment Plan for Indigenous Women of Panama	Plan de Empoderamiento Económico de las Mujeres Indígenas de Panamá
PENCYT	National Strategic Plan for Science, Technology and Innovation	Plan Estratégico Nacional de Ciencia, Tecnología e Innovación
PISA	National Strategic Plan for Science, Technology and Innovation	Programa para la Evaluación Internacional de los Estudiantes
PoC	Point of Contact	Punto de contacto
PSP	Payment Service Provider	Proveedor de servicios de pagos
QES	Qualified Electronic Signature	Firma Electrónica calificada
QR	Quick Response	Respuesta rápida

	English	Spanish
RDCS	Regional Development Cooperation Strategy	Estrategia de cooperación para el desarrollo social
RedCLARA	Latin American Advanced Networks Cooperation	Cooperación Latinoamericana de Redes Avanzadas
REDGELAC	e-Government Network of Latin America and the Caribbean	Red de Gobierno Electrónico de Aémrica Latina y el Caribe
REDPAMIF	Microfinance Network of Panama	Red Panameña de Microfinanzas
RNMS	National Multiservices Network	Red Nacional Multiservicios
SBP	Superintendency of Banks of Panama	Superintendencia de Bancos de Panamá
SBP	Strategic Broadband Plan	Plan Estratégico de Banda Ancha
SENACYT	National Secretary of Science, Technology and Innovation	Secretaría Nacional de Ciencia, Tecnología e Innovación
SICA	Central American Integration System	Sistema de la Integración Centroamericana
SIECA	Secretary for the Economic Integration of Central America	Secretaría de Integración Económica Centroamericana
SIP	Inter American Press Association	Sociedad Interamericana de Prensa
SMV	Superintendency of the Securities Market of the Republic of Panama	Superintendencia del Mercado de Valores de Panamá
SOC	Security Operation Center	Centro de Operaciones de Seguridad
SSNF	Superintendence of Non-Financial Subjects of Panama	Superintendencia de Sujetos no Financieros de Panamá
SSRP	Superintendency of Insurance and Reinsurance of Panama	Superintendencia de Seguros y Reaseguros de Panamá
STEM	Science, Technology, Engineering, and Mathematics	Ciencia, tecnología, ingeniería y matemáticas
TA	Technical Assistance	Asistencia técnica
TAIEX	Technical Assistance and Information Exchange	Asistencia técnica para el intercambio de información
TE	Tribunal Electoral	Electoral Tribunal
TFGBV	Technology Facilitated Gender Based Violence	Violencia de género facilitada por la tecnología
TVWS	TV White Space	Espacios en blanco de TV
UIDI	Computer Crime Investigation Unit	Unidad de Investigacion de Delitos Informaticos
UNDP	United Nations Development Programme	Programa de las Naciones Unidas para el Desarrollo
UN-EGDI	United Nations E-Government Development Index	Índice de Desarrollo de Gobierno Electrónico

	English	Spanish
UNHCR	United Nations High Commissioner for Refugees	Alto Comisionado de las Naciones Unidas para los Refugiados
UNSDGs	United Nations Sustainable Development Goals	Objetivos de Desarrollo Sostenible de las Naciones Unidas
UPU	Universal Postal Union	Unión Postal Universal
USAID	U.S. Agency for International Development	Agencia de los Estados Unidos para el Desarrollo Internacional
USF	Universal Service Fund	Fondo de Servicio Universal
USG	U.S. Government	Gobierno de Estados Unidos
UTP	Technological University of Panama	Universidad Tecnológica de Panamá
UTRAMS	Unified Technical Request and Mission Support	Solicitud técnica unificada y soporte de misión
VAT	Value-Added Tax	Impuesto al valor agregado
VUCE	Single-Window System for Foreign Trade	Sistema de Ventanilla Única de Comercio Exterior
WFP	World Food Programme	Programa Mundial de Alimentos
WoSEC	Women of Security	Women of Security

Executive Summary

BACKGROUND

The U.S. Agency for International Development (USAID) launched its Digital Strategy[1] in April 2020 to achieve and sustain open, secure, and inclusive digital ecosystems that contribute to broad-based, measurable development and humanitarian assistance outcomes through the responsible use of digital technology.

The Digital Ecosystem Country Assessment (DECA) is a flagship initiative of the Digital Strategy.[2] It examines three pillars of a nation's digital ecosystem: (1) digital infrastructure and adoption; (2) digital society, rights, and governance; and (3) digital economy. The Panama DECA was funded by the U.S. State Department through the Digital Connectivity and Cybersecurity Partnership (DCCP) and therefore accounts for both USAID and U.S. State Department priorities. The U.S. Government (USG) prioritized topics include critical infrastructure improvements, digital government and local governance, digital rights, and cybersecurity. The DECA was also informed by the USAID Central America Regional Development Cooperation Strategy (RDCS), which has three overarching development objectives: increase the regional flow of capital and goods, strengthen regional responses to corruption and citizen security, and improve management of transboundary environmental and health threats.[3] The Panama Integrated Country Strategy also informed the DECA.[4]

PANAMA DECA: KEY FINDINGS AND RECOMMENDATIONS

Panama enjoys extensive 4G coverage in urban areas, although many rural areas rely on 3G coverage. Private sector actors are making investments in fiber optic coverage and modernizing their mobile networks. The Government of Panama (GoP) is rethinking 5G deployment and restructuring a strategic broadband plan, but an outdated legal framework, bureaucratic roadblocks, and spectrum pricing have restricted the evolution of the network.

RECOMMENDATION

✓ **Support the GoP to modernize the legal, regulatory, and strategic framework governing telecommunications.** The international development community can work with the country's public service authority, *Autoridad Nacional de los Servicios Públicos* (ASEP), the country's telecommunications regulator, through partnerships with third party and private sector experts. Programs could promote capacity-building, legal and regulatory reforms, spectrum auction design and implementation. These reforms may include promoting more regulatory autonomy and distinguishing roles and responsibilities among GoP actors. Permitting processes and infrastructure sharing could also be more strongly enforced to streamline deployments, especially in rural areas.

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1 "USAID Digital Strategy 2020–2024, USAID," n.d., https://www.usaid.gov/usaid-digital-strategy.

2 https://www.usaid.gov/digital-strategy/implementation-tracks/track1-adopt-ecosystem/digital-ecosystem-country-assessments.

3 "USAID El Salvador: Regional Development Cooperation Strategy (RCDS) June 30,2022-June 30,2027," USAID, 2020, https://www.usaid.gov/sites/default/files/2022-12/FINAL%20RDCS-E-CAM%20-%20English%20Public%20Version.pdf.

4 https://www.state.gov/wp-content/uploads/2022/04/ICS_WHA_Panama_Public.pdf.

Panama's high network penetration rate belies large gaps in rural areas. Communities in municipalities such as the Darién province are far from main roads and the electrical grid. Humanitarian actors and mobile network operators (MNOs) are working to pilot last-mile connectivity solutions in these hard to reach communities. More inclusive approaches are needed, especially in Indigenous communities which have long been left out of large infrastructure investments. Overcoming misinformation surrounding the health effects of network expansion also poses an ongoing challenge.

RECOMMENDATION

✓ **Strengthen the enabling environment for last-mile connectivity solutions to enhance inclusiveness of rural, migrant, and Indigenous communities.** The international development community can explore the feasibility of exporting lessons learned from other countries in the region to Panama. This may include exporting lessons learned from places like Mexico, which have had success scaling connectivity solutions in Indigenous areas. The international development community can consider incorporating connectivity activities into programming implemented by humanitarian organizations in the country, like IOM, UNHCR, and the Red Cross. Solutions may also include working with terrestrial fiber providers to tap into close by international cable landing points, such as those by the ARCOS submarine cable in the city of Ustupo, and working with low-earth orbit satellite providers Starlink and AST Spacemobile to connect 5G mobiles to satellite-based towers.The international development community can also shape the relationship between ASEP and the private sector to help develop a sustainable business case for telecommunications in these underserved areas. Finally, the international development community could consider working with the GoP to counter 5G misinformation.

Private and public sector actors have implemented digital literacy campaigns for students, teachers, and the general population. The GoP deployed 380 small-scale internet-connected centers across the country through its *InfoPlazas* initiative, but more could be done to improve both the quality and reach of these efforts, especially in rural and Indigenous communities.

RECOMMENDATION

✓ **Develop digital literacy initiatives, especially across underserved areas, to improve and promote digital adoption.** The international development community could bridge the gap between the *InfoPlazas* network, academic institutions, and local communities through Indigenous NGOs like *Geoindigena* to build out more inclusive content for the country's pre-existing network of digital literacy infrastructure. The international development community could also build on the work of MNOs, the *Ministerio de Educación*, and secondary schools that have rolled out digital literacy curricula in select institutions.

Panama stands out in Latin America as one of the first countries to implement a data protection law, with the approval of Law 81 of 2019, the Data Protection Law. This law establishes the core principles, rights, obligations, and procedures for safeguarding the personal data of individuals and legal entities in Panama. Civil society and media freedom advocates have raised concerns regarding the law's effective enforcement, especially when it comes to media professionals.

RECOMMENDATION

✓ **Strengthen the legal and regulatory framework to protect human rights online.** The international development community can work with the GoP, professional media associations, and civil society to foster a multi-stakeholder working group to discuss how to build more robust digital protections for citizens. Lawmakers will benefit from workshops with legal advisors and tech experts to socialize the application

of rights to digital technologies and translate that knowledge into effective policies. These discussions should include the perspectives of vulnerable groups, including women, who have experienced an uptick in online harassment and violence.

Panama has made significant strides in establishing a strong digital governance framework aimed at driving digital transformation, evident through initiatives like the National Digital Agenda (PANAMA 4.0) and alignment with international commitments such as the UN Sustainable Development Goals. In 2022, Panama ranked 82 out of 193 countries in the United Nations E-Government Index (EGDI), surpassing the regional average. The country also improved its standing in the GovTech Maturity Index (GTMI), moving from the "Significant focus on GovTech" category in 2020 to "GovTech leaders" in 2022. Panama has also implemented robust regulatory measures for public sector transparency, open government data, and personal data protection. Institutions such as the *Autoridad Nacional Para la Innovación Gubernamental* (AIG), the GoP's government transformation agency, and *Autoridad Nacional de Transparencia y Acceso a la Información* (ANTAI), the data protection authority, have played major roles in improving digital government frameworks. Despite this progress, resource constraints and a lack of interoperable systems present challenges to furthering these digital transformation efforts.

RECOMMENDATION

- ✓ **Bolster and maintain better data-driven and interoperable digital systems.** The international development community could facilitate a more in-depth evaluation of Panama's e-government systems to diagnose key gaps and challenges, especially at the municipal level. The international development community could advocate for a mindset shift for both citizens and public sector actors accustomed to more analog processes and promote interoperability of all GoP systems. Partnering with civil society organizations like *Geoindigena*, *Espacio Civico*, and regional initiatives like SERVIR and Copernicus, may help incubate more inclusive, data-driven processes. For example, the international development community could build partnerships between SERVIR and the GoP to expand the capacity of analysts and decision-makers to be good data stewards, and to integrate data into operational analysis, policy, planning, management, and communications.

- ✓ **Strengthen democratic pluralism by promoting more transparency and accessibility.** The international development community could host recurring virtual events to share lessons learned between regional digital government champions and successful ministries to move toward a more transparent government in the region. In addition, the international development community could conduct regional workshops with national government lawmakers, legal advisors, and tech experts to scale inclusive rights-respecting digital regulation. Partners may include regional representatives from data protection authorities like ANTAI, digital transformation agencies like AIG, and other government stakeholders along with media associations and members of civil society.

Despite Panama's high regional rankings in press freedom indices like the World Press Freedom Index and Freedom in the World, the country's legal framework offers limited protection for journalists. The country is witnessing a growing number of defamation lawsuits targeting journalists and media outlets—including from government authorities—often resulting in significant financial penalties, posing a significant threat to press freedom. The state of press freedom in Panama and the legal pressures on journalists can have a chilling effect on media independence. Vulnerable groups, particularly women, frequently face online harassment and violence.

RECOMMENDATION

✓ **Bolster safeguards for journalists to protect media freedom.** The international development community can support journalists in navigating the challenges of investigative journalism in Panama, especially those journalists pursuing anti-corruption stories. The international development community can explore promoting legal aid to defend freedom of expression.

Panama's bank-dominated financial sector offers a wide array of digital financial services (DFS), however the sector does not adequately cater to the financial needs and preferences of vulnerable population groups. The volume of DFS transactions grew considerably during the COVID-19 pandemic and mobile money has secured its place in the digital economy. And yet, financial technology (FinTech) companies have not had an easy time breaking into the DFS market, due in large part to regulatory gridlock. Panama's position as a regional financial hub risks masking the relatively lower levels of digital financial inclusion of marginalized population groups, including women, rural residents, refugees, asylum seekers, and migrants. Digitalization can exacerbate existing inequalities, so it will continue to be critically important for the GoP, financial service providers (FSPs), and the international development community to promote digital financial inclusion extensively.

RECOMMENDATION

✓ **Strengthen the regulatory and strategic frameworks for the digital economy.** The international development community could cultivate a strategic relationship with the National Center for Competitiveness (CNC) to champion the Panama Digital Hub Strategy and future policies, strategies, and regulations of the digital economy. The international development community could also build a community of practice to facilitate the exchange of knowledge, experiences, and ideas that will help inform the design of regulatory and strategic frameworks for issues related to the digital economy.

✓ **Support upskilling initiatives to strengthen the digital talent pool.** The international development community could partner with academia, labor organizations, and chambers of commerce to investigate the supply and demand of digital talent by conducting a digital talent needs based assessment. The international development community could also engage Panamanian youth through educational programs to raise awareness about careers in digital more broadly. The USG may consider working with the SERVIR program, which includes engaging youth in careers that use satellite data to inform policy and business.

✓ **Promote a human-centered and inclusive approach to developing the DFS market.** The international development community could work with the *Superintendencia de Bancos de Panamá* (SBP), the national bank regulator, to design a roadmap to update and implement the Financial Inclusion Strategy. The international development community could also partner with financial sector actors and the GoP to shape DFS incentives.

Panama's role as a regional trading and financial center has not enhanced its position as a leader in the e-commerce sector and tech startup landscape. Panama certainly has made significant headway in building out its e-commerce sector, including implementing the GoP's e-invoicing mandate and putting in place a series of digital trade facilitation measures. However, much work remains to be done. The logistics sector is underdeveloped and micro-, small, and medium-sized enterprises (MSMEs) have varying experience with digitalization. Furthermore, many elements of the tech startup ecosystem are weak or missing. Most critically, access to finance and the concentration of entrepreneurship activity in Panama City represent significant challenges. Finally, the limited availability of human capital in Panama with the requisite skills to compete in a digital economy is viewed as a major shortcoming.

RECOMMENDATION

✓ **Facilitate synergies between Panama and its neighbors to improve cross-border digital trade.** The international development community could help the GoP strengthen the existing National Trade Facilitation Committee (NTFC). The international development community could also help launch a regional trade forum to discuss ongoing efforts in implementing digital customs.

✓ **Guide startups along maturation process to help them expand into the global market.** The international development community could partner with incubators to shape an entrepreneurship program linking startups with the international market. The international development community could also partner with local and regional initiatives to decentralize and improve the quality of business support organizations (BSO) and connect ProPanama with international initiatives to attract and develop strategies to mobilize private investment.

For the past decade, Panama has proactively adopted several cybersecurity policies, including a national cybersecurity strategy, cyber crime legislation, joining the Budapest Convention, and establishing a Panama Computer Emergency Response Team (CERT). However, momentum has slowed. Today, Panama still has gaps to fill in the country's cybersecurity legal and regulatory framework, law enforcement capacity, and the cyber hygiene awareness of both the public sector and general population. In particular, as the GoP considers implementing 5G, cybersecurity does not seem to be a major concern, but as ASEP considers refreshing telecommunication regulations, this may be a good entry point.

RECOMMENDATION

✓ **Strengthen the country's cybersecurity competencies, capabilities, and resilience.** The international development community could support actors to identify and regulate the CII sectors and assets; work with the GoP and ASEP to integrate cybersecurity measures into the telecommunications regulatory framework; work with stakeholders to launch a multi-sectoral working group to expedite the new cyber crime legislation; organize capacity-building activities for lawmakers, law enforcement officials, prosecutors, and judges; partner with the GoP and stakeholders to launch a comprehensive national cybersecurity awareness-raising program; support public sector training on cybersecurity through connection with training by SANS, CISCO, IBM, and others; and leverage relationships with international partners to exchange cybersecurity best practices and lessons learned among government actors.

ROADMAP FOR THE REPORT

About this Assessment section provides background on the DECA framework and goals.

DECA Findings section presents the key findings about Panama's digital ecosystem. This section is organized into three subsections by DECA pillar: digital infrastructure and adoption; digital society, rights, and governance; and digital economy.

Recommendations section outlines how the international development community can leverage and support the Panama digital ecosystem to achieve improved development outcomes.



Navigation tip: The navigation bar in the footer throughout this report helps you move between sections. Dark blue text will indicate the current section you are in.

About this Assessment

USAID's Digital Strategy aims to improve USAID development and humanitarian assistance outcomes through the responsible use of digital technology and to strengthen the openness, inclusiveness, and security of country digital ecosystems. The Digital Strategy and the DECA are part of USAID's holistic approach to helping achieve the Sustainable Development Goals (SDGs).

As part of the Digital Strategy implementation, the DECA examines three broad areas to understand the opportunities and challenges in a country's digital ecosystem:

1. Digital Infrastructure and Adoption
2. Digital Society, Rights, and Governance
3. Digital Economy

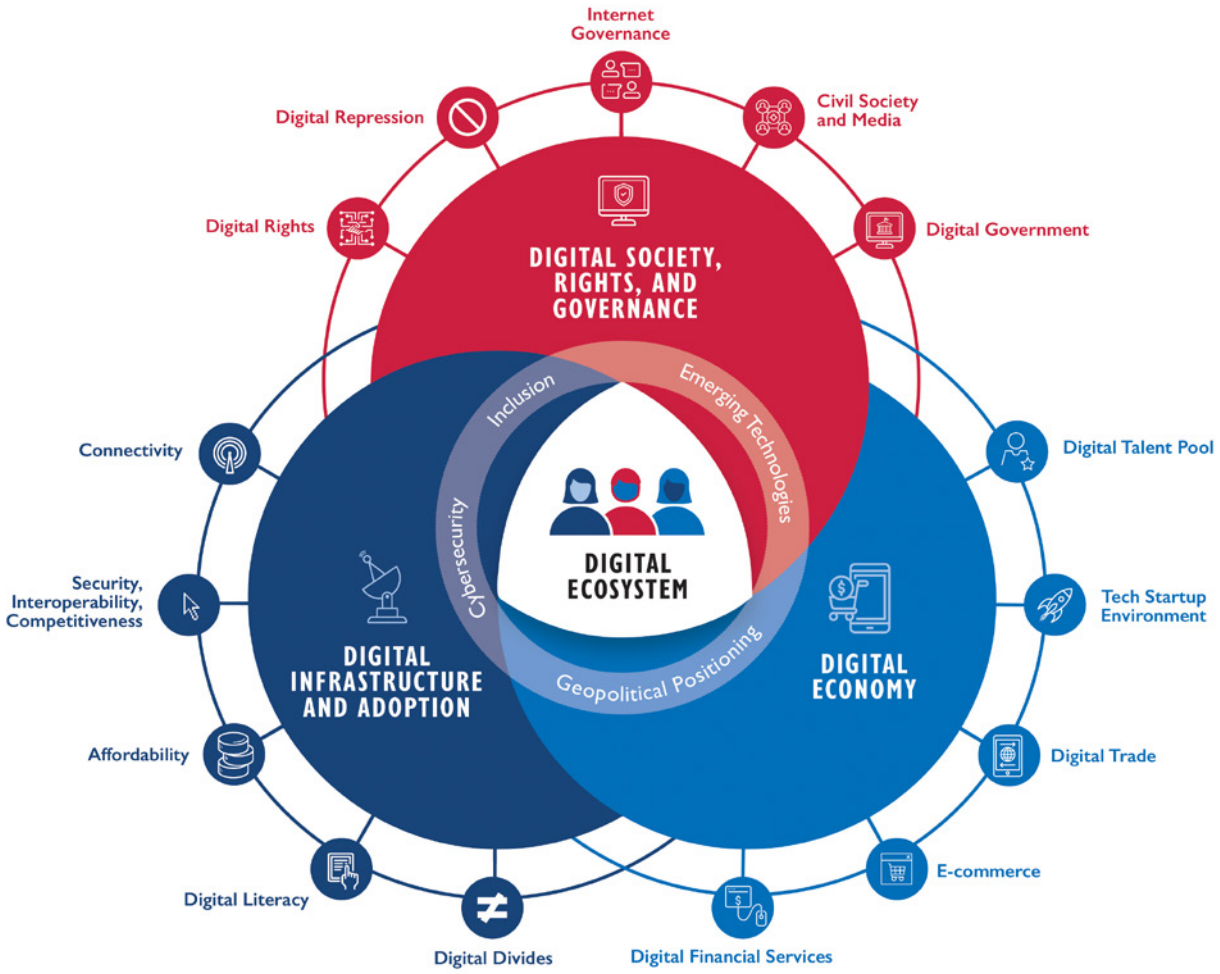
KEY TERMS | BOX 1: Digital Ecosystem

A digital ecosystem is comprised of stakeholders, systems, and an enabling environment that together empower people and communities to use digital technology to gain access to services, engage with one another, and pursue economic opportunities.

The joint US State Department and USAID/CAM Panama DECA took place between May 2023 and November 2023. It included desk research, consultations with USG, virtual interviews, and two weeks of in-person interviews. It involved a total of 81 interviews with stakeholders from civil society, academia, the private and public sectors, international development organizations, and USAID/CAM and U.S. Embassy technical offices.

Rather than act as an authoritative source on the country's digital ecosystem, the DECA is intended to be a rapid assessment of opportunities and challenges tailored to the USG's programmatic priorities, and thus does not cover all of the USAID program offices and projects in-depth.

FIGURE 1: USAID's Digital Ecosystem Framework



DECA Findings

PILLAR 1: DIGITAL INFRASTRUCTURE AND ADOPTION

Digital Infrastructure and Adoption refers to the resources that make digital systems possible and how individuals and organizations access and use these resources. Digital infrastructure includes geographic network coverage, network performance, internet bandwidth, and spectrum allocation as well as telecommunications market dynamics around security, interoperability, and competitiveness. This pillar also examines behavioral, social, and physical barriers and opportunities for equitable adoption (digital divides, affordability, and digital literacy)—who uses and does not use digital technologies and why.

KEY TAKEAWAYS : DIGITAL INFRASTRUCTURE AND ADOPTION

FINDINGS

- Panama's telecommunications sector is governed by an outdated legal framework which hinders the evolution of the network and connectivity expansion
- Urban, populated areas are serviced by reliable 3G and 4G connectivity, but many remain unconnected, particularly in rural areas and where Indigenous communities live
- The GoP and private sector have illustrated a commitment to improving digital literacy, but more could be done to increase adoption
- The national cost of data meets international benchmarks, but based on other economic disparities, affordability may be more of a challenge in rural and Indigenous communities

RELEVANT RECOMMENDATIONS

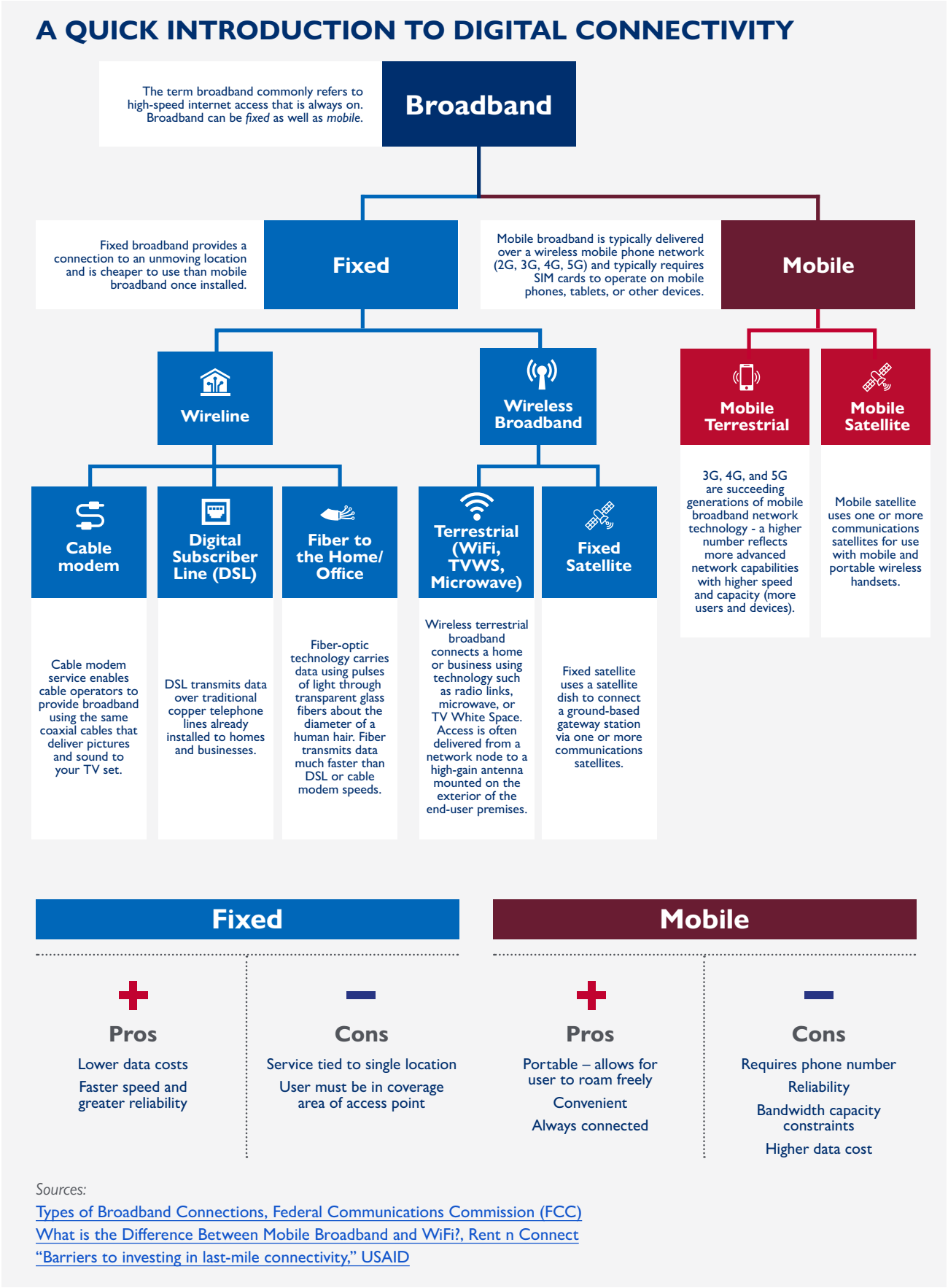
1. Support the GoP to modernize the legal, regulatory, and strategic framework governing telecommunications
2. Strengthen the enabling environment for last-mile connectivity solutions that are more inclusive of rural, migrant, and Indigenous communities
3. Develop digital literacy initiatives, especially across underserved areas, to improve and promote digital adoption

INTRODUCTION

Over the past three decades, the share of individuals using the internet in Panama has grown from 6.5 percent in 2000 to 67.5 percent in 2021.[5] Today, most Panamanians have access to 3G or 4G service, and a regionally competitive quality of service. However, an outdated legal framework, bureaucratic roadblocks, and spectrum pricing have restricted the evolution of the network. Disparities in access and usage persist, particularly in rural areas, where private sector actors have made fewer investments as compared to urban areas. Humanitarian actors wrestle with the sustainability of alternative solutions, like satellites, to bring connectivity to these areas. Both public and private sector actors recognize the need for more than just physical infrastructure to connect the unconnected, including digital literacy programs and awareness raising campaigns. To ensure Panama mitigates the risks of emerging technologies, the GoP and other actors can improve awareness of cyber hygiene and safe and secure internet access.

5 Percentage of Individuals using the Internet," ITU, last updated 2022, https://www.itu.int/en/ITU-D/Statistics/Pages/stat/default.aspx.

FIGURE 2: A quick introduction to digital connectivity



Sources:

Types of Broadband Connections, Federal Communications Commission (FCC)
What is the Difference Between Mobile Broadband and WiFi?, Rent n Connect
"Barriers to investing in last-mile connectivity," USAID

1.1 THE TELECOMMUNICATIONS LANDSCAPE

1.1.1 OUTDATED LAW AND A PATHWORK POLICY FRAMEWORK

Since 1996, Panama's telecommunications sector has been governed by Law 31 (1996).[6] In 2006, the GoP named ASEP as the sector's regulator.[7] Over the past 27 years, the GoP has passed additional laws, decrees, and reforms to modernize the country's legal framework (see Table 1).[8] Key milestones include establishing a specific law for Universal Access in 2008, formal infrastructure sharing mechanisms in 2009, and updated spectrum allocation procedures in 2016.

TABLE 1: Panama's Telecommunications Legal Framework at a Glance

LEGAL COMPONENT	DATE	SUMMARY
Law No. 31	February 8, 1996	This law establishes the general rules and regulations that govern Panama's telecommunications sector. It delineates the granting process of telecommunications concessions, including different grades of concessions, types of services offered, pricing and approval protocols. It also defines spectrum, the entity that awards spectrum, and mandates the development of a frequency plan.
Law No. 26	January 29, 1996	This law establishes a public services regulatory authority to oversee the telecommunications, water, sanitation, and electricity sectors in Panama. It delineates a maximum regulation rate, board composition, powers and responsibilities.
Executive Decree No. 73	April 9, 1997	This decree regulates the installation, establishment, and maintenance of telecommunications networks and services in line with objectives from Law 31.
Law No. 10	February 22, 2006	This law names ASEP as the formal regulator of the telecommunications sector.
Law No. 59	August 11, 2008	This law defines the rules and responsibilities of Panama's Universal Services Fund. It delineates the Advisory Board composition and authority, and defines the one percent annual contribution amount raised from operators.
Executive Decree 562	October 21, 2008	This resolution entitles ASEP to rule all dispositions related to the installation and supervision of towers and digital infrastructure.
Annex A Resolution AN No. 2848	August 5, 2009	This resolution establishes the mechanisms and metrics for the installation, maintenance, and shared use of towers.
Law No. 65	October 30, 2009	This law creates Panama's government innovation agency, AIG.
National Plan for Frequency Allocation	December 2016	This plan outlines the procedures of spectrum allocation in Panama.
Law No. 479	April 2018	This law promotes the entrance of a third operator in order to regulate the competition in the market, avoiding monopolistic practices.
Law No. 36	June 5, 2018	This law governs economic mergers and acquisitions in the telecommunication sector.

6 "Legislación,"ASEP, accessed October 2023, https://www.asep.gob.pa/?page_id=13061.

7 "Decreto Ley No. 10 (de 22 de Febrero de 2006)," El Presidente de la Republica, February 22, 2006, https://asep.gob.pa/wp-content/uploads/transparencia/articulo_9/9_2-politicas_institucionales/marco_legal/ley_10.pdf.

8 "Legislación", ASEP, accessed October 2023, https://www.asep.gob.pa/?page_id=13061.

However, despite Panama's regulatory maturity (see Box 2) and progressive legislation over the past few decades, interviewees in the private sector noted that several bottlenecks remain. For one, while there does seem to be clear legal distinctions between the roles and responsibilities distinguishing ASEP and AIG, the country's government transformation agency, some ambiguity remains. For example, AIG administers Panama's Strategic Broadband Plan (SBP). In 2013, the SBP set goals to expand 100 Mbps bandwidth to areas with more than 10,000 inhabitants per kilometer, between 10 and 30 Mbps to areas between 1,000 and 10,000 inhabitants, and between 2 and 10 Mbps to areas with 1,000 inhabitants per kilometer or fewer.[9] The plan also aimed to expand broadband penetration to 47.5 percent and internet penetration to 85 percent of Panamanian households by 2022.[10] Finally, the SBP aimed to complete the transition to digital terrestrial television by 2021.[11] One telecommunications industry expert noted that the broadband plan should have been led by ASEP, and that AIG's plans do not sync clearly and consistently with ASEP's regulations.[12] In addition, the broadband plan has not been updated since 2013. One telecom, the country's largest MNO, noted that the plan has achieved most of its goals, including assigning the 700 MHz band to mobile services, and must be updated to focus on the future needs of the market.[13] A regional telecommunications expert noted that AIG had planned to make an update to the broadband plan, but was delayed due to the COVID-19 pandemic.[14]

BOX 1: A closing competitive space

- **2017:** Panama has four main MNOs: Movistar Panama, Cable & Wireless Panama (CWP), Digicel Panama, and Claro Panama.
- **April 2017:** The GoP announces intentions to reduce the number of operators to three, maximizing spectrum resources.
- **June 2018:** The GoP passes Law No. 36, legally enabling market consolidation to three operators per prior notification to Autoridad de Protección al Consumidor y Defensa de la Competencia (ACODECO), Panama's consumer protection authority.
- **2019:** Millicom International, which operates Tigo, enters the market by acquiring Panamanian cable company Cable Onda[15] and Telefonica Moviles Panama[16], which operates Movistar.
- **2021:** Liberty Latin America, which owns 49 percent of CWP, partners with America Movil to acquire Claro Panama.[17] The GoP has a 49 percent stake in CWP.[18]
- **2022:** Digicel announces its decision to exit the market, resigning its concession and returning its license to ASEP. Digicel alleges that the mergers between Panama's top telecommunications providers have transformed

9 "*Plan Estratégico de Banda Ancha para la República de Panamá*, "AIG, July 2013, 41. https://aig.gob.pa/descargas/2019/06/PlanEstrategicoBandaAncha.pdf?csrt=6096874575006282617.

10 "*Plan Estratégico de Banda Ancha para la República de Panamá*," AIG, July 2013, 4. https://aig.gob.pa/descargas/2019/06/PlanEstrategicoBandaAncha.pdf?csrt=6096874575006282617.

11 "*Plan Estratégico de Banda Ancha para la República de Panamá*," AIG, July 2013,22. https://aig.gob.pa/descargas/2019/06/PlanEstrategicoBandaAncha.pdf?csrt=6096874575006282617.

12 Telecommunications industry expert, interview by the DECA team, October 2023, online.

13 Telecom, interview by the DECA team, October 2023, online.

14 Regional telecommunications expert, interview by the DECA team, July 2023, in person.

15 "Millicom to acquire 80% of Cable Onda for USD1bn," Telegeography, October 8, 2018, https://www.commsupdate.com/articles/2018/10/08/millicom-to-acquire-80-of-cable-onda-for-usd1bn/.

16 "Millicom agrees USD1.65bn deal for Telefonica assets in Nicaragua, Panama and Costa Rica," Telegeography, February 21, 2019, https://www.commsupdate.com/articles/2019/02/21/millicom-agrees-usd1-65bn-deal-for-telefonica-assets-in-nicaragua-panama-and-costa-rica/.

17 "Cable & Wireless Panama agrees USD200m Claro takeover," Telegeography, September 16, 2021, https://www.commsupdate.com/articles/2021/09/16/cable-wireless-panama-agrees-usd200m-claro-takeover/.

18 Tom Leins, "The Panama Paper Trail: Tracking Five Years of Telecom Upheaval," Telegeography, January 23, 2023, https://blog.telegeography.com/the-panama-paper-trail-tracking-five-years-of-telecom-upheaval.

BOX 1 (CONTINUED): A closing competitive space

the market into an oligopoly, making it impossible to compete, noting the high cost of interconnection costs, renewal and purchasing additional spectrum.[19]

- **Jan 2023:** ASEP opens public tender for a new mobile license to replace Digicel.[20]

Telecommunications stakeholders did not comment extensively on Panama's market consolidation. One telecommunication industry expert noted that Digicel's exit from the market was a direct result of the CLARO-CWP merger, which impacted its ability to compete.[21] Today, the GoP owns 49 percent of CWP. One interviewee added that being judge and party to a merger clearly affects competition.[22] One telecom noted that ASEP is following the procedure established in the law to bring a third operator into the market.[23] As it does so, the telecom emphasized that current legal warranties should be respected and that any new action avoid anti-competitive market distortions.[24] This situation leaves the telecommunications market in Panama with only two strong MNOs that dominate the industry in the region. In March 2023, ASEP reported that General Internacional Telecom Panama (GITPAN) was the sole bidder.[25] In April 2023, ASEP relaunched the tender after GITPAN failed to submit adequate documentation.[26]

Various permitting and approval requirements can also lead to delays in the deployment of towers. The process begins with obtaining an approval from ASEP and ends with an approval and construction permit from the municipality. Providers must fulfill a long list of requirements for the various government institutions that range from the signing of a contract for the use of land, citizen consultations, and, in some cases, environmental impact studies, planning and design presentations, and health permits. These requirements vary between each of the institutions.[27] While these requests should be granted if public officials do not respond in time, in practice, this often does not happen. One private sector interviewee similarly opined on the permitting process, agreeing that these authorizations often do not correspond to those established in the law.[28]

BOX 2: Panama's regulatory maturity

The ITU characterizes Panama's regulatory environment as proactive, ranking it a G3 country.[29] A G3 country enables investment, innovation, and access, stimulates competition in both service and content delivery, and ensures consumer protection. By comparison, Guatemala is a G2 country, Honduras a G3 country, El Salvador a G3 country, Costa Rica a G4 country, and Colombia a G4 country.[30]

19 "Digicel drops Panama exit bombshell," Telegeography, April 7, 2022, https://www.commsupdate.com/articles/2022/04/07/digicel-drops-panama-exit-bombshell/.

20 "Panama launches tender for new mobile operator", Telegeography, January 10, 2023, https://www.commsupdate.com/articles/2023/01/10/panama-launches-tender-for-new-mobile-operator/.

21 Telecommunications industry expert, interview by the DECA team, October 2023, online.

22 Telecommunications industry expert, interview by the DECA team, October 2023, online.

23 Telecom, interview by the DECA team, October 2023, online.

24 Telecom, interview by the DECA team, October 2023, online.

25 "Gitpan is the sole bidder for Digicel's vacated licence, ASEP reveals," Telegeography, March 17, 2023, https://www.commsupdate.com/articles/2023/03/17/gitpan-is-the-sole-bidder-for-digicels-vacated-licence-asep-reveals/.

26 James Barton, "ASEP begins tender for Digicel Panama's licence – again," Developing Telecoms, April 17, 2023, https://developingtelecoms.com/telecom-business/telecom-regulation/14893-asep-begins-tender-for-digicel-panama-s-licence-again.html?utm_source=related_articles&utm_medium=website&utm_campaign=related_articles_click.

27 Regional telecommunications expert, interview by the DECA team, July 2023, in person.

28 Private sector interviewee, interview by the DECA team, July 2023, in person.

29 "ICT Regulatory Tracker," ITU, last updated 2022, https://app.gen5.digital/tracker/country-cards/Panama.

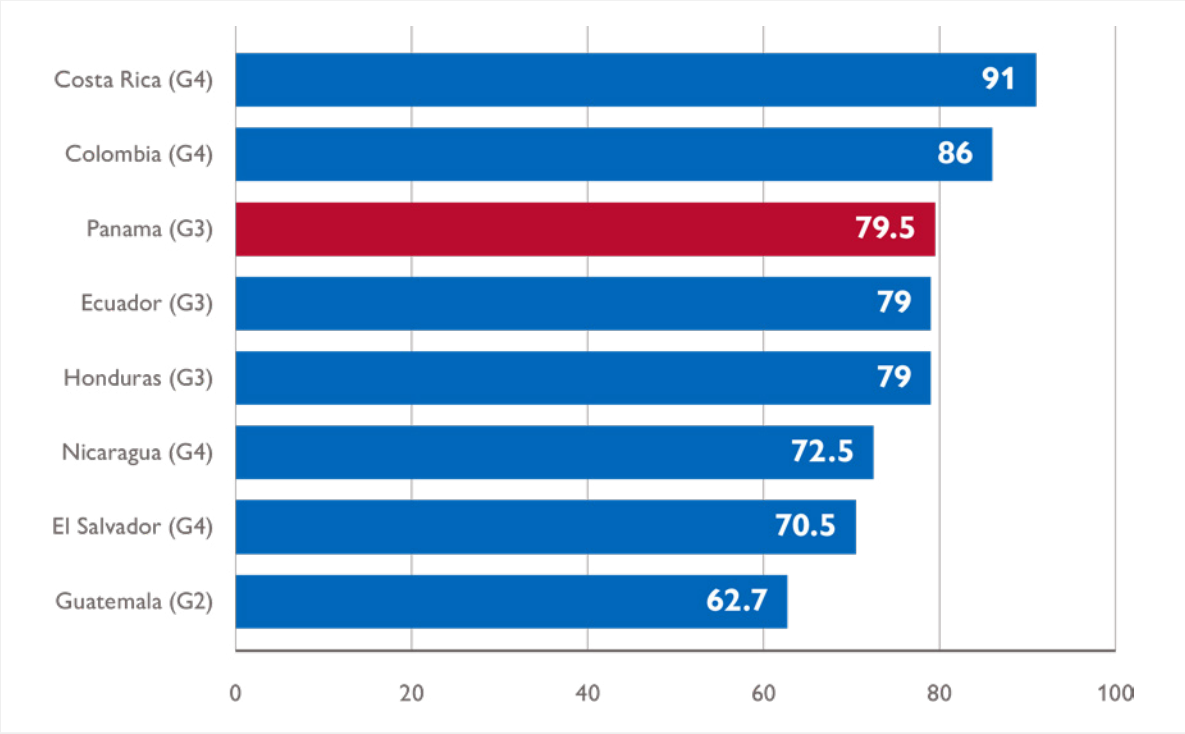
30 "ICT Regulatory Tracker," ITU.

BOX 2 (CONTINUED): Panama's regulatory maturity

The ITU's Regulatory Tracker grades the maturity of a country's telecommunications regulatory environment against four sequential levels, called "generations," from Generation 1 (G1) to Generation 4 (G4). As a country's regulatory environment rises from one generation to the next, it can be viewed as more collaborative and flexible, and less centrally and directly managed by a single authority. The ITU grades a country's regulatory environment against a scorecard of 50 indicators, with a maximum score of 100, grouped into four categories: the regulatory authority, regulatory mandates, the regulatory regime, and the competitive framework. To move from one level to the next, a country must proactively enact reforms to liberalize market conditions and encourage more investment and access.

G1 regulatory environments, such as Cuba's, Ethiopia's, and Libya's, are characterized by little accountability governing internal administrative procedures, such as approving a regulator's budget, public or market transparency, and often by a monopolistic competitive environment. By contrast, G4 regulatory environments, such as Kenya's, Colombia's, and Armenia's are much less static. These countries encourage more competition, flexibility, and transparency in the marketplace. Kenya's regulator issues global licenses to facilitate a more level playing field for service providers, while Cuba and Ethiopia offer service-specific licenses. These are more cumbersome to issue and less dynamic in a sector characterized by rapid technological change, but cede more control to the regulator. Kenya also permits co-location of infrastructure and number portability, while both Cuba and Ethiopia do not.

FIGURE 3: Central America's regulatory maturity at a glance



Some private sector actors noted that this decentralization between municipalities and the national government can hinder reaching agreements. One telecommunications sector interviewee noted that each of Panama's municipalities can dictate the cost and prerequisites for the installation of physical infrastructure, like antenna, towers, and permitting fees for ducts and rights of way.[31] Since providers must negotiate these on a jurisdiction-by-jurisdiction basis, variable costs can be too hard to manage for new deployments. In other countries,

31 Regional telecommunications expert, interview by the DECA team, July 2023, in person.

municipalities have reached agreements with telecommunication companies in which they have established tariffs for the use of public land for the construction of telecommunication structures.[32] It has not been possible to obtain this type of agreement with local authorities in Panama.[33]

1.1.2 THE FIXED AND MOBILE BROADBAND LANDSCAPE

ASEP estimates that there are approximately 6,981,815 active mobile broadband subscriptions in Panama, equivalent to 156 percent of the total population.[34] This rate reflects multiple SIM ownership by individuals and factors such as prepaid SIM card usage in the market. In comparison, ASEP estimates much lower use of both fixed and wireless broadband, approximately 18 percent and 0.2 percent of the population, respectively.[35,36] This estimate aligns with some of Panama's contiguous neighbors—Costa Rica (21 percent) and Colombia (17 percent), and above others in the region, including Guatemala (4 percent), Honduras (5 percent), and El Salvador (11 percent).

32 Regional telecommunications expert, interview by the DECA team, July 2023, in person.

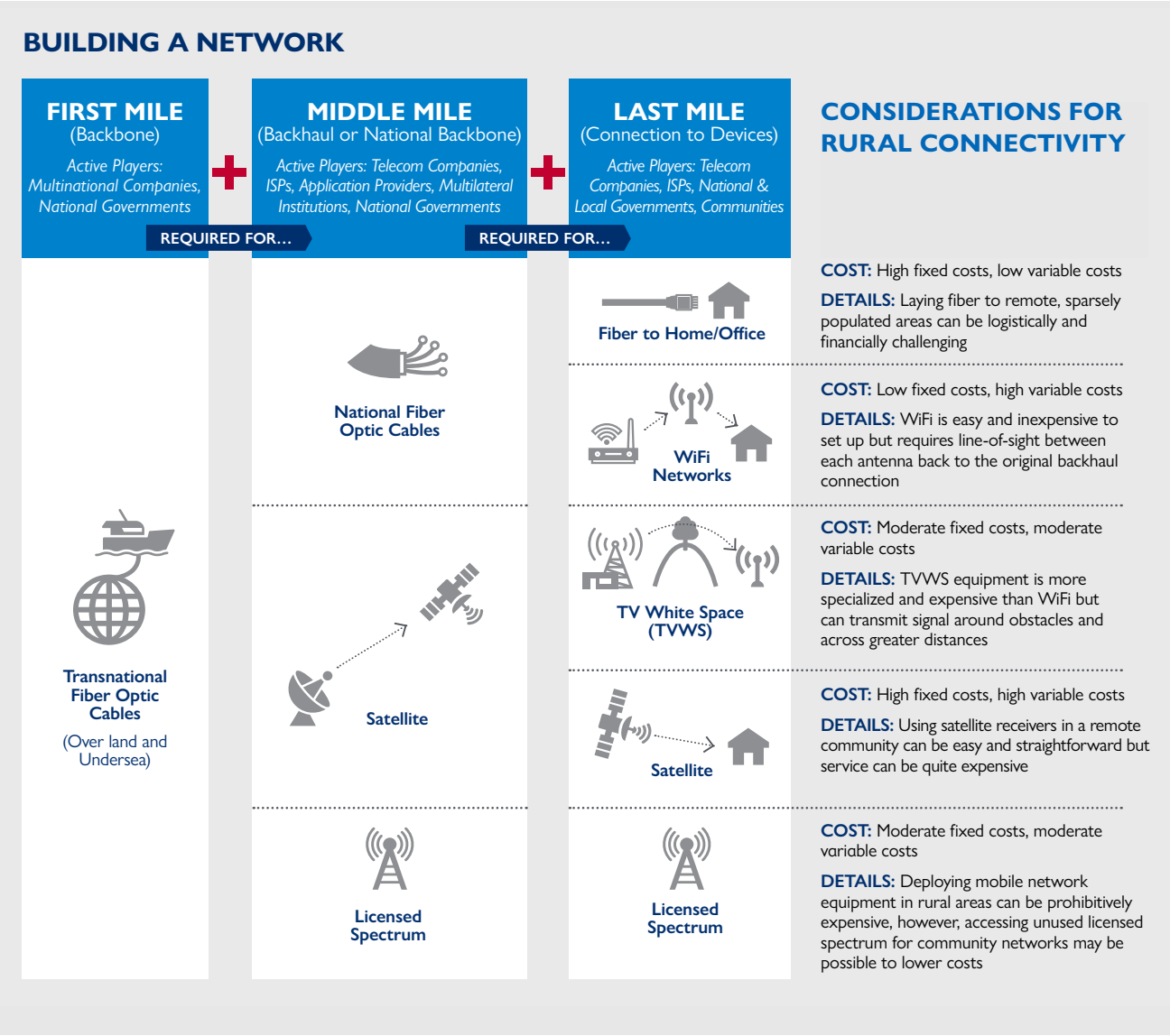
33 Regional telecommunications expert, interview by the DECA team, July 2023, in person.

34 "Indicadores del Servicio Móvil Cellular República, Años 2019–23," ASEP, https://www.asep.gob.pa/wp-content/uploads/telecomunicaciones/estadisticas/2023/106-107_2023.pdf.

35 "ITU Digital Development Dashboard: Panama," ITU, 2022, https://www.itu.int/en/ITU-D/Statistics/Dashboards/Pages/Digital-Development.aspx.

36 Indicadores del Servicio Móvil Cellular," ASEP.

FIGURE 4: Building a network

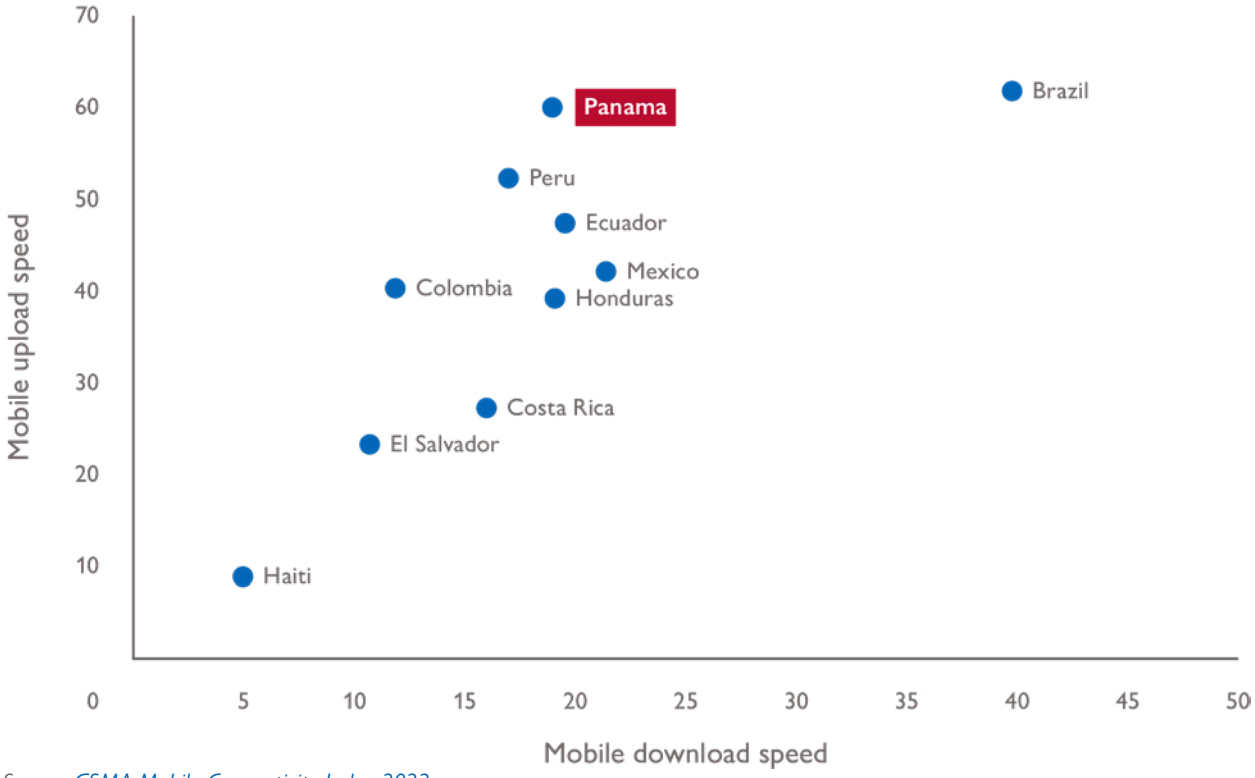


The connectivity landscape is characterized by three levels of connectivity: the first mile, connecting a country to the world, the second mile, connecting towns and cities, and the last-mile connecting homes and businesses (see Figure 4). As illustrated in Figure 6, Panama is served by six submarine cables, and will be served by eight by 2026,[37] making it one of the most connected countries in Central America. Panama's quality of service (see Figure 5) is competitive in the region, with higher upload speeds as compared with its contiguous neighbors and download speeds slightly lower than in Brazil. One private sector interviewee said that Panama's geographical location and international connections are reasons why Torrecom partnered with an Italian company to launch the Panama Digital Gateway, the biggest data center in Central America.[38]

37 Abdul-Rahman Oladimeji, "Americas: Panama to Boost Connectivity with Two New Submarine Cables and Digital Gateway Project," Baxtel, April 18, 2023, https://baxtel.com/news/panama-to-boost-connectivity-with-two-new-submarine-cables-and-digital-gateway-project.

38 Private sector interviewee, interview by the DECA team, July 2023, in person.

FIGURE 5: Mobile upload and download speeds



Source: GSMA Mobile Connectivity Index 2022

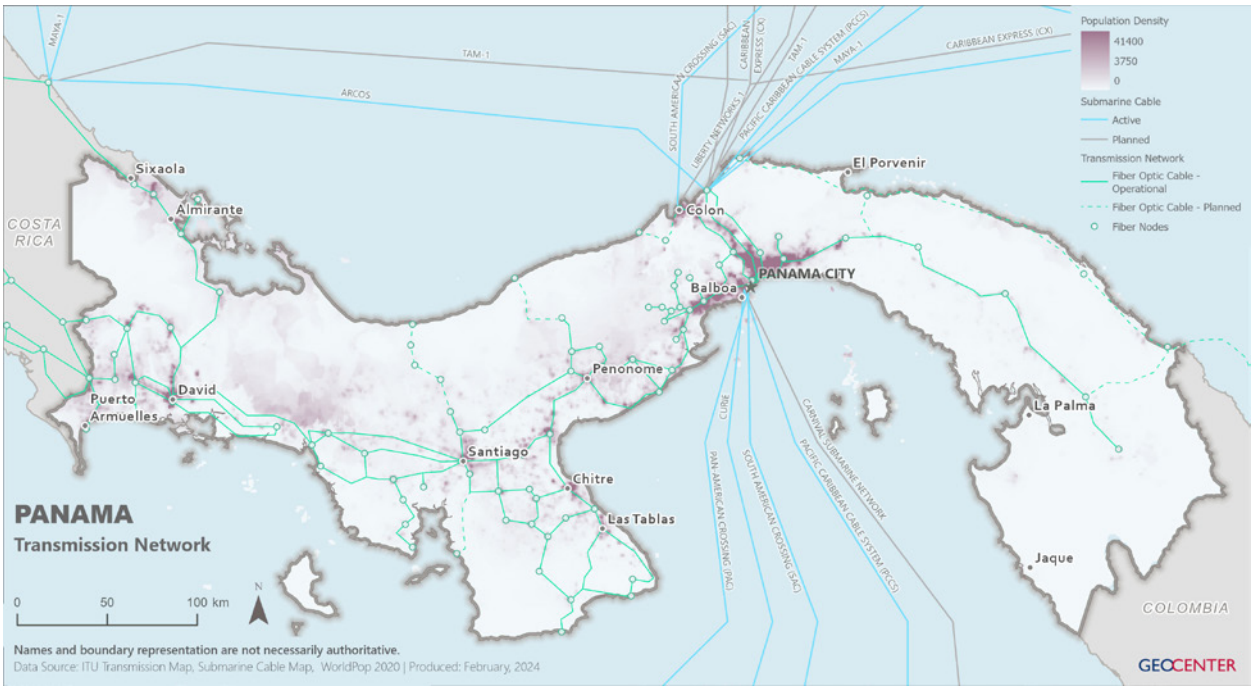
Panama's fiber optic backbone (see Figure 4 – "Middle Mile") is concentrated along the country's major towns and cities (see Figure 6). Fiber optics providers in Panama include UFINET, TransOcean, MetroMpls, Whippet, and Gold Data. According to one telecom, most urban areas are served by more than two fixed operators.[39] Few fixed broadband connections exist outside of the main urban centers. In 2022, the Inter-American Development Bank (IADB) explored the costs and benefits associated with connecting 1,071 Panamanian schools that remain unconnected. IADB differentiated between three zones: schools that were 2 kilometers, 2 to 20 kilometers, and more than 20 kilometers away from the fiber optic network. The project would require expanding the transmission network by providing last-mile connection through the first two zones and providing alternative models for the last zone.[40] In total, the IADB estimated that $47 million would be needed to complete the project.[41]

39 Telecom, interview by the DECA team, September 2023, online.

40 Antonio Garcia Zaballos, Ricardo Martine Garza, Pau Puig Gabarro, et al.," IADB, September 2021, https://publications.iadb.org/es/la-situacion-actual-y-los-desafios-del-sector-de-telecomunicaciones-de-panama.

41 Antonio Garcia Zaballos, "La situación actual."

FIGURE 6: Panama's submarine cable and fiber broadband landscape by population density



Sources: ITU Interactive Terrestrial Transmission

ASEP estimates that 93 percent of Panama's population is covered by mobile broadband.[42] However, rural communities, especially those in the northeast and south of Panama, including the Darién Province, are not as connected as their urban counterparts. As shown in Figure 6, these are areas with much lower population density as compared to the rest of the country.

1.1.3 UNIVERSAL ACCESS AND RURAL CONNECTIVITY

In 2008, the GoP established Panama's universal access fund to expand connectivity to remote areas that are not yet commercially viable. Law 59/2008 requires operators to contribute 1 percent of their gross income to the fund.[43] Today, AIG administers the *Junta Asesora de Servicio y Acceso Universal* (JAS) and the fund also receives 25 percent of radio spectrum allocations.[44] The JAS advisory board provides two paths for project development.[45] First, they allow operators to propose their own projects that meet JAS criteria.[46] Second, the JAS advisory board announces their own public tenders.[47] A telecommunications interviewee noted that this two-pronged approach allows for a greater diversity of projects.[48]

42 "Indicadores del Servicio Móvil Celular en La República, Años 2019–23," ASEP, https://www.asep.gob.pa/wp-content/uploads/telecomunicaciones/estadisticas/2023/106-107_2023.pdf.

43 "Ley 59 de 11 de agosto de 2008 Que promueve el Servicio y Acceso Universal a las tecnologías de la información y de las telecomunicaciones para el desarrollo y dicta otras disposiciones," Panama National Assembly, adopted August 11, 2008, https://aig.gob.pa/descargas/2019/06/Ley59de11deagosto2008JAS.pdf?csrt=14029890824679956205.

44 Regional telecommunications expert, interview by the DECA team, July 2023, in person.

45 Telecom, interview by the DECA team, September 2023, online.

46 Telecom, interview by the DECA team, September 2023, online.

47 Telecom, interview by the DECA team, September 2023, online.

48 Telecom, interview by the DECA team, September 2023, online.

BOX 3: Closing the digital divide: The story of InfoPlazas

In 2014, *the Secretaría Nacional de Ciencia, Tecnología e Innovación* (SENACYT) inaugurated the InfoPlazas project, an effort by the GoP to democratize knowledge and expand access and use of ICT tools to low resource areas throughout the country. InfoPlazas community centers are equipped with computers, printers, fax machines, photocopiers, fixed phones, and internet access provided by AIG for use by the community. Today, there are 370 InfoPlazas, 70 percent of which are located in rural areas.[49] In 2023, the program planned to launch 30 new centers; it is unclear based on whether they were launched based on publicly available information.[50]

The InfoPlazas program assigns users to one of four categories—the general public, primary and secondary school students, retirees, and teachers. Fifty percent of users come from the first category, 40 percent from the second, and 10 percent from the rest.[51] Fifty-three percent of these users are women,[52] and 80 percent of the facilitators that run trainings for community members are women.[53] While the equipment is provided by the InfoPlazas program, gaining access to the centers costs a nominal fee—25 cents for students and retirees, and 50 cents for other users.[54]

While the InfoPlazas are meant to be hubs for education and communication, their overall impact is unclear. Program administrators have not developed a methodology to examine the quality of service the centers provide beyond the number of users facilitators train.[55] An interviewee admitted that, in addition to the use of computers, the service that is most used by people is the printing of documents.[56] Submitting homework assignments digitally is not an option in remote areas without internet access and taking into account low teacher digital literacy. Sustainability is also a pending issue. While the program provides the equipment for the centers, long term maintenance costs fall on the associate.[57] However, administrators emphasized that it is not normal for an InfoPlaza to close.[58]

The InfoPlazas program is working to expand and improve its services. In 2023, InfoPlazas partnered with several regional universities, including *Centro Regional Universitario de Panamá Oeste* and the *Centro Regional Universitario de Darién* to provide students with better access to the internet and other support.[59] A public sector interviewee emphasized that the program hopes to partner with more academic institutions to develop curricula that could expand the usefulness of the centers, and develop methodologies to measure their impact.[60]

Between 2014 and 2017, the GoP built 1,320 points of access equipped with Wi-Fi in public schools and parks, covering 84 percent of the population.[61] One telecom noted that Tigo has participated in three universal access projects—one in the Darién and two in two Indigenous *comarcas*: Comarca Guna Yala and Comarca Ngäbe

49 Public sector interviewee, interview by the DECA team, July 2023, in person.

50 Public sector interviewee, interview by the DECA team, July 2023, in person.

51 Public sector interviewee, interview by the DECA team, July 2023, in person.

52 Public sector interviewee, interview by the DECA team, July 2023, in person.

53 Public sector interviewee, interview by the DECA team, July 2023, in person.

54 Public sector interviewee, interview by the DECA team, July 2023, in person.

55 Public sector interviewee, interview by the DECA team, July 2023, in person.

56 Public sector interviewee, interview by the DECA team, July 2023, in person.

57 Public sector interviewee, interview by the DECA team, July 2023, in person.

58 Public sector interviewee, interview by the DECA team, July 2023, in person.

59 Irenka Pérez, "Infoplazas AIP se establecerá unidad en el CRU Panamá Oeste," Up Informa Diario Digital, September 15, 2023, https://upinforma.com/nuevo/info.php?cat=noticias&id=8067; "Habilitan salón de Infoplaza en Centro Regional Universitario de Darién," Día A Día, July 21, 2023, https://www.diaadia.com.pa/el-pais/habilitan-salon-de-infoplaza-en-centro-regional-universitario-de-darien-769508.

60 Public sector interviewee, interview by the DECA team, July 2023, in person.

61 "Gobierno pone a funcionar 1,320 puntos de conexión de Internet gratis," La Estrella de Panamá, October 27, 2017, https://www.laestrella.com.pa/nacional/171027/1-320-pone-gobierno-funcionar.

Buglé.[62] Tigo launched the Comarca Ngäbe Buglé project in 2022, installing antennas in Llano Tugri and Chichica and connecting 44,000 people for the first time.[63] Other GoP actors, such as SENACYT, have invested resources in other projects that JAS does not fund. These include the InfoPlazas project, which, as of 2023, has built 370 technology enabled community centers aimed to increase rural digital literacy (see Box 3).

KEY TERMS | BOX 2: Last-Mile Connectivity and Universal Services Fund

Last-Mile Connectivity is where the end users get access to the internet using devices (mobile phones, laptops, tablets, computers) through local access networks.

A **Universal Service Fund** (USF) is a mechanism designed to promote network infrastructure development in areas that commercial access providers deem uneconomical. Essentially established as subsidy programs, USFs are typically resourced through contributions drawn from the revenues of telecommunications operators. USF funds are often applied to help de-risk or otherwise complement network investments in underserved or unserved areas. In many cases, USFs target projects that serve schools, hospitals, and other anchor institutions where end-user demand for services can be aggregated and more readily be met to achieve greater socioeconomic impact.

Humanitarian organizations have partnered with low-earth orbit (LEO) satellite providers, like Starlink, to pilot projects to close this gap. The World Food Programme (WFP) is piloting Starlink across several migrant camps—communities far from main roads with low population densities located deep in the remote jungle that may never receive mobile services—according to one interviewee. An interviewee from an international development practitioner called Starlink a "game changer" in the Darién.[64] According to one anonymous international development practitioner, not only have these projects enabled migrants to communicate with loved ones back home, but they have also enabled the border police to reduce processing times, shrinking the time migrants must spend in camp by 24 hours.[65] However, no public record could be found that specifies where in the Darién WFP is implementing these activities.

The United Nations High Commissioner for Refugees (UNHCR) is also working with local communities to launch a satellite-enabled community network to bring internet to the Darién. Indigenous communities are often the "first responders" to migrants crossing the jungle, but must travel 20 minutes or more to get a signal, where connection is intermittent at best.[66] The UNHCR is working with private sector partners and the Government of Luxembourg to finance the project.[67] However, the UNHCR may be navigating concerns from the GoP that internet access may not just increase the number of migrants crossing the border, but may also facilitate criminal activity in the region.[68] As of July 2023, the GoP has not approved this internet network.[69]

The long term costs of satellite solutions remain an open question. An interviewee from an international development organization noted that Starlink may not be able to provide services to individual households in these areas, but could be used to expand connectivity to key public convening areas, like plazas, where 100 to

62 Telecom, interview by the DECA team, September 2023, online.

63 "Más de 44 mil personas de la Comarca Ngäbe Buglé con conectividad," Crítica.com.pa, March 11, https://www.critica.com.pa/provincias/mas-de-44-mil-personas-de-la-comarca-ngabe-bugle-con-conectividad-624797.

64 Anonymous international development practitioner, interview by the DECA team, July 2023, in person.

65 Anonymous international development practitioner, interview by the DECA team, July 2023, in person.

66 International development organization, interview by the DECA team, August 2023, online.

67 International development organization, interview by the DECA team, August 2023, online.

68 International development interviewee, interview by the DECA team, August 2023, online.

69 International development interviewee, interview by the DECA team, August 2023, online.

150 individuals can congregate and use the service.[70] Another international development organization acknowledged that satellite connectivity can be expensive. The Government of Luxembourg is providing services to their project as an in-kind donation for a period up to three years.[71] They indicated that some packages cost approximately USD 50 per month after the initial USD 240 to USD 500 for installation.[72]

1.1.4 5G TRIALS AND TRIBULATIONS

The GoP is committed to launching 5G services in Panama. One objective of the GoP's Digital National Agenda (DNA) is to determine the benefits of deploying 5G in Panama by promoting pilot projects and updating the regulatory framework, although the DNA does not detail how to achieve these goals. In 2022, ASEP, AIG, and CAF, the development bank of Latin America and the Caribbean, co-hosted a forum exploring how best to structure a roadmap for the technology's deployment.[73]

BOX 4: Applicability of Open RAN in Panama

Over the past four years, operators in Peru, Colombia, Brazil, and Argentina have explored the feasibility of Open Radio Access Network (O-RAN or Open RAN) technology.[74] Most of these deployments have been early stage proof of concepts.[75] According to the GSMA, few operators in Latin America have ranked open access technologies as the best way to deal with network complexity.[76]

Interviewees from MNOs expressed similar skepticism of O-RAN's potential in Panama. An interviewee from a telecom noted that widespread adoption of O-RAN was still at an early stage, requiring the technology to mature.[77] The telecom also expressed skepticism that O-RAN could meet the demanding configurations required in urban environments.[78] According to one telecommunications industry expert, O-RAN is not as cost effective as traditional replacement costs and vendors.[79] Panama's small size and few network antennas call into question its economies of scale.[80]

A brief explainer on O-RAN architecture

Mobile networks consist of two key components: a Radio Access Network (RAN) and a Core Network (Core). The RAN includes antennae and the base stations. When calls are made or when someone is streaming data, the antennae transmit and receive signals to and from mobile devices. This signal is digitized in a RAN base station and connected to the Core. The Core enables operators to charge for data use and calls, connects users to the internet, and ensures that users are authenticated for the services they are using. In most cases, it is currently difficult to use different vendors for RAN components, and interoperability between RAN equipment from different vendors is challenging.

O-RAN is an effort to establish industry standards for RAN equipment interoperability so mobile operators are not locked into a single vendor to manage their networks. O-RAN interfaces allow interoperable hardware and software

70 Anonymous international development practitioner, interview by the DECA team, July 2023, in person.

71 International development organization, interview by the DECA team, August 2023, online.

72 International development organization, interview by the DECA team, August 2023, online.

73 https://www.asep.gob.pa/?p=206080.

74 Pau Castells, James Joiner, and Alejandro Adamowicz, "5G in Latin America: Unleashing the potential," GSMA, June 2023, 25. https://www.gsma.com/latinamerica/wp-content/uploads/2023/06/290623-5G-in-Latam-ENG.pdf.

75 Castells, "5G in Latin America."

76 Castells, "5G in Latin America."

77 Telecom, interview by the DECA team, September 2023, online.

78 Telecom, interview by the DECA team, September 2023, online.

79 Telecommunications industry expert, interview by the DECA team, October 2023, online.

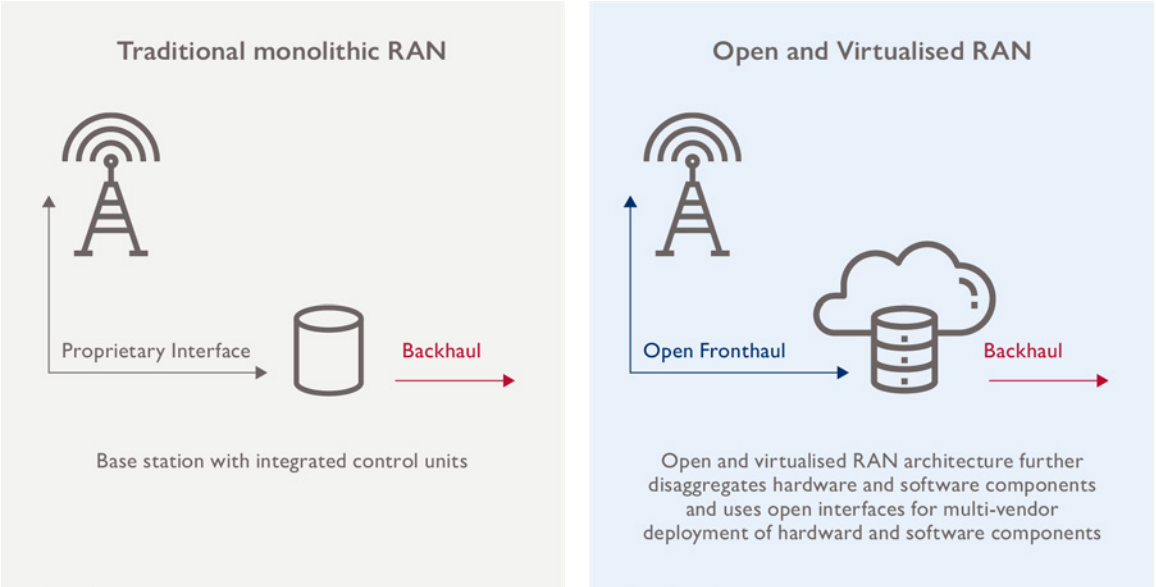
80 Telecommunications industry expert, interview by the DECA team, October 2023, online.

BOX 4 (CONTINUED): Applicability of Open RAN in Panama

from multiple vendors to be combined. If the security of a specific vendor's hardware or software is or becomes a concern, the operator can find alternatives.

Disaggregating the RAN is expected to create new network deployment scenarios, spur innovation, facilitate local equipment assembly, enhance security transparency, and minimize risks facing the industry as it scales up its networks for the future. Opening up proprietary elements and interfaces in the RAN will diversify the network equipment and software ecosystem, bringing in new suppliers and additional market competition. O-RAN may also reduce base station costs, which is critical for mobile operators deploying 5G due to the large number of base stations that will be required.

FIGURE 7: Traditional monolithic RAN vs Open RAN



Source: "Open and Virtualised Radio Access Networks: An Explanatory Guide for Policymakers," GSMA, February 2021

Today, 5G is not yet available in Panama. Private sector actors pointed out that while Panama may be on the "doorstep of 5G," its outdated laws and regulators are not ready to make the leap.[81] Challenges include the slow pace of regulatory reform and non-competitive pricing structures. One private sector interviewee suggested that ASEP may not be able to keep up with the rapid pace of technological change.[82] As companies prepare for 5G, an interviewee says ASEP is working on cleaning up and determining the frequency bands to be used for this new technology.[83] A telecom noted that current regulations must be modified to facilitate the timely deployment of 5G.[84] Providers do not seem to see a viable business case for 5G given the current economic and policy landscape.

5G projects are plagued by the same health misinformation that haunt expansions of other networks. In 2019, ASEP halted plans to prepare frequencies for 5G adoption amid concerns that this technology could spread

81 Regional telecommunications expert, interview by the DECA team, July 2023, in person.

82 Regional telecommunications expert, interview by the DECA team, July 2023, in person.

83 Regional telecommunications expert, interview by the DECA team, July 2023, in person.

84 Telecom, interview by the DECA team, September 2023, online.

disease.[85] A telecom noted that this concern continues to impose friction on any future deployment.[86] Local communities fear that new towers pose health risks to their populations. The telecom highlighted the importance of a GoP awareness campaign on alleged public health impacts to address these concerns if 5G is to advance.[87] GoP interviewees neither indicated their perceptions of this challenge, nor whether they are planning to implement activities to address it.

1.1.5 SPECTRUM POLICY

Spectrum refers to the electromagnetic waves that transport data between two radio-enabled devices, such as internet-capable mobile phones. These resources are managed by governments and are often allocated to MNOs by auction to maximize economic efficiency, or by administrative assignment, a processes often called "beauty contests."

Administrative assignment and auctions each have their advantages and disadvantages. Administrative assignment allows regulators to swiftly allocate spectrum for critical needs, to ensure that spectrum is allocated to meet specific policy objectives such as promoting competition as well as allocated with a degree of predictability. Without the competitive pressure of auctions, there is a risk of underutilization of spectrum, as assignment may not reflect its true market value or demand. The administrative assignment process may also lack transparency in comparison to auctions.

In Panama, ASEP assigns spectrum to each operator in equal proportion rather than by auction. One telecom indicated that this is a positive, since each MNO pays the same price and can use their spectrum immediately based on market conditions rather than being delayed by auctions.[88] According to one public sector interviewee, this method encourages competition in the marketplace.[89]

85 "Did health concerns lead Panama to put 5G on hold?" BNamericas, March 25, 2021, https://www.bnamericas.com/en/analysis/did-health-concerns-lead-panama-to-put-5g-on-hold.

86 Telecom, interview by the DECA team, September 2023, online.

87 Telecom, interview by the DECA team, September 2023, online.

88 Telecom, interview by the DECA team, September 2023, online.

89 Public sector organization, interview by the DECA team, August 2023, online.

KEY TERMS | BOX 3: Radio Spectrum, ISPs, and MNOs

Radio Spectrum refers to the range of frequencies of electromagnetic radiation that are used to deliver radio transmissions. A critical function of telecommunications sector regulatory authorities is to designate specific frequency ranges (or bands) for different purposes, including telecommunications (but also for applications such as radio astronomy or other industrial uses). Some bands (e.g., Wi-Fi) are *unlicensed*, meaning that anyone can use them without seeking explicit prior permission.[90] *Licensed* spectrum[91] requires users (e.g., commercial cellular networks or FM radio broadcasters) to secure a regulator's approval prior to use. Licenses are typically assigned through spectrum auctions, which aim to establish the economic value of spectrum.

Internet Service Providers (ISPs) deliver access to end-users utilizing both fixed-line and wireless technologies. Wireless ISPs (especially those in rural areas) often seek to take advantage of low licensing and equipment costs by delivering service using unlicensed spectrum. ISPs range in size and scope from small, local providers to providers with international and even global reach.

Mobile Network Operators (MNOs) provide voice and data services primarily through wireless terrestrial networks. MNOs typically use licensed spectrum bands, which are not shared and so tend to deliver a higher quality, more reliable (and more cost-intensive) service.

During COVID-19, the GoP decided to temporarily grant MNOs the right to use spectrum in the AWS Band for free to support tele-education and remote work.[92] According to one public sector organization, this decision catalyzed a change in the government's perspective, as they recognized the importance of spectrum as a tool for development instead of simply as a source of government revenue.[93] While the free transfer of spectrum use in the AWS band ended after 24 months, the organization indicated that this action contributed to the development of the telecommunications sector and at the same time helped to introduce a new spectrum pricing and valuation structure, adjusted to the reality of the mobile market.[94] The organization contends that this strategy has been a commercial success.[95]

Operators still view the price of additional spectrum as expensive, affecting the evolution of Panama's network (See Section 1.1.4). In 2022, following years of pressure from the mobile industry, ASEP proposed a new price of $1,214m per MHZ for the AWS band.[96] However, as noted above, there are no spectrum auctions in Panama. ASEP provides spectrum for all active mobile operators equally so that each one can make their own investments. According to one telecom, this new price represents a 40 percent decrease as compared to the price based on

90 While permissions are not required for unlicensed spectrum use, users are typically limited to technical parameters such as transmission power or antenna specifications.

91 Mitchell Barker, "Licensed vs. unlicensed spectrum," itWeb, April 30, 2013, https://www.itweb.co.za/article/licensed-vs-unlicensed-spectrum/KrxP3jMBLomvA2ye.

92 Public sector organization, interview by the DECA team, August 2023, online.

93 Public sector organization, interview by the DECA team, August 2023, online.

94 Public sector organization, interview by the DECA team, August 2023, online.

95 Public sector organization, interview by the DECA team, August 2023, online.

96 Telecom, interview by the DECA team, September 2023, online.

the previous methodology.[97] The GSMA, an industry association, characterized this decision as a positive step to improve the quality of service for all Panamanians.[98,99]

1.1.6 NETWORK INFRASTRUCTURE SHARING

Private sector interviewees identified the cost of expanding, populating, and maintaining mobile and home infrastructure, like radio towers, as a factor influencing infrastructural investment.[100] One way to reduce costs in deployment is by sharing infrastructure among MNOs. In many countries, governments have adapted their regulatory framework for telecommunications infrastructure to encourage this collaboration among MNOs. These arrangements can include tower companies that build infrastructure to then lease that infrastructure to MNOs, unless their agreement includes exclusive tenancy. This practice is a strategy to promote cost efficiency, reduce duplication of resources and efforts, and accelerate the expansion of networks, especially in remote and underserved areas.

Although infrastructure co-location in Panama is mandatory by law, some interviewees noted that, in practice, collaboration is not commonplace. One telecommunications industry expert emphasized that while infrastructure sharing may be included in the regulatory framework, "it has not been enforceable."[101] The process to request co-location among MNOs is extensive and depends on the technical feasibility of installing third-party equipment in a sole structure, at the discretion of the owner of the infrastructure. MNOs with a more robust deployment footprint may be in an advantaged position to negotiate terms. One interviewee noted that "prices on co-location agreements between MNOs are not regulated."[102] Municipal licensing and permitting do not seem to have an impact on infrastructure sharing, as these processes are only applicable to new construction.

1.2 AFFORDABILITY AND ACCESSIBILITY OF INTERNET SERVICES

1.2.1 AFFORDABILITY

For most Panamanians, the cost of data does not seem to present a major obstacle that hinders access to the internet. According to the Alliance for Affordable Internet (A4AI), a country has an affordable internet when 1GB of mobile broadband data is priced at 2 percent or less of the average monthly income. As of 2021, 1GB of data stood at 2.09 percent of GNI per capita in Panama, just slightly above A4AI's target.[103] By comparison, the cost of 1 GB of data is 4.93 percent of GNI per capita in El Salvador, 3.40 percent in Guatemala, 8.71 percent in Honduras, 0.72 percent in Costa Rica, and 1.86 percent in Colombia.[104]

Neither does device affordability seem to play a significant role in access disparities. The GSMA Mobile Connectivity Index scores the cost of entry-level handsets and the affordability of 1 GB of data on a scale of 0 to 100, with

97 Telecom, interview by the DECA team, September 2023, online.

98 Lucas Gallitto and Luiz Felippe Zoghbi, "Panama reduced the price of spectrum by more than 60%: what does it mean for users?," GSMA, June 27, 2022, https://www.gsma.com/spectrum/panama-reduced-the-price-of-spectrum-by-more-than-60-what-does-it-mean-for-users/.

99 GSMA is an industry association that represents the mobile network operators. Lower spectrum costs benefit MNOs, as spectrum access fees are a major input cost in their business model. Lower fees can enable higher corporate profits. However, if the access fee of the public resource is undervalued, there are possible negative impacts on the public interest, including suboptimal cost recovery for use of a public good in the form of contributions to the public treasury.

100 Telecom, Interview by the DECA team, September 2023, online.

101 Telecommunications industry expert, interview by the DECA team, October 2023, online.

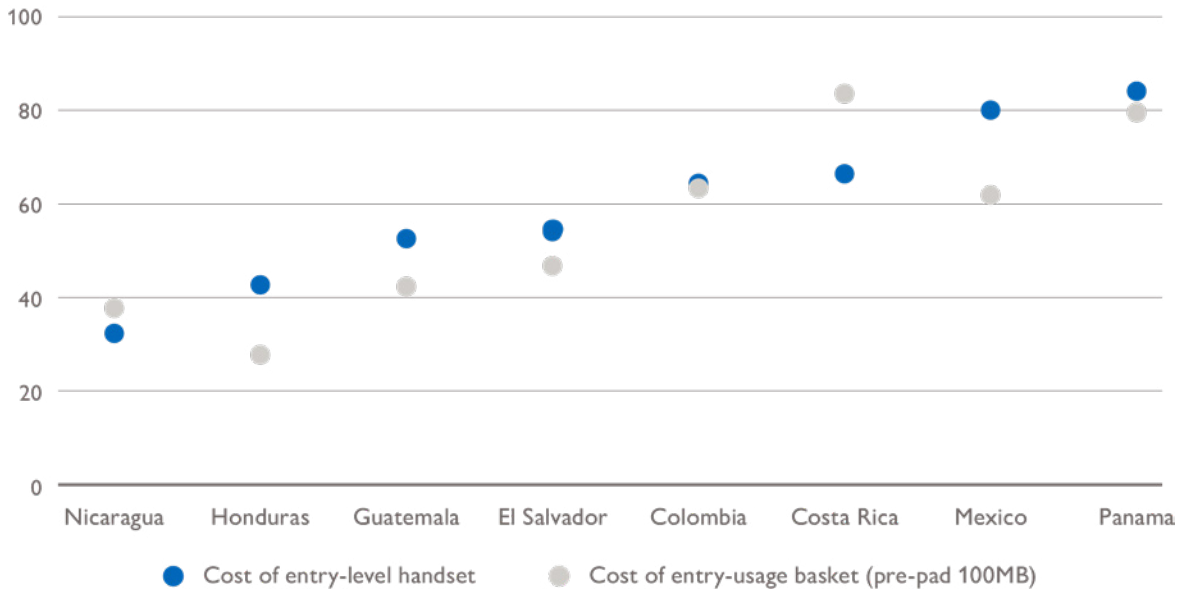
102 Telecommunications industry expert, interview by the DECA team, October 2023, online.

103 Alliance for Affordable Internet, Data-only mobile-broadband, October 5, 2023, https://adi.a4ai.org/extra/baskets/A4AI/2021/mobile_broadband_pricing_gni.php.

104 Alliance for Affordable Internet, Data-only mobile-broadband.

higher scores indicating better performance.[105] Panama ranks at the top as compared to its Central American neighbors (see Figure 8).

FIGURE 8: Device and data affordability in Panama



Source: GSMA Connectivity Index

Panama also launched an internet exchange point (IXP) in 1997.[106] IXPs are physical interconnection points through which different internet service providers (ISPs) and content delivery networks (CDNs) connect and exchange internet traffic. IXPs help shorten the physical distance that data needs to travel, improving both network latency and cost. Panama's IXP, InteRed, is a member of the Latin America and Caribbean Network Inform Centre's (LACNIC) regional IXP association, LAC-IX, and is a participant in the Mutually Agreed Norms for Routing Security (MANRS) initiative.[107] The GoP requires that all ISPs connect to the IXP.[108] Currently, InteRed has 21 members, including the country's largest providers, such as Tigo and Liberty Technologies.[109]

The IXP grew slowly, according to InteRed, with limited capacity that threatened its usefulness.[110] However, a leadership change and COVD-19 data demands fueled an overhaul of both equipment and processes.[111] Members now have 10 times more data capacity than prior to the upgrade.[112] Network latency also fell by more than half, benefiting both IXPs and local content creators.[113] In 2019, CAF commissioned a feasibility study to explore

105 "Mobile Connectivity Index: Panama," GSMA, 2022, https://www.mobileconnectivityindex.com/index.html#year=2022&zoneIsocode=PAN&analysisView=PAN.

106 "Panama's IXP, Once Languishing, Has a Renewed Sense of Purpose," Internet Society, accessed October 2023, https://www.internetsociety.org/issues/ixps/success-stories/panama/.

107 "Membresia", InteRed, accessed October 2023, https://intered.org.pa/.

108 "Panama's IXP, Once Languishing, Has a Renewed Sense of Purpose," Internet Society, accessed October 2023, https://www.internetsociety.org/issues/ixps/success-stories/panama.

109 InteRed, Membresia.

110 Internet Society, Panama's IXP, Once Languishing.

111 Internet Society, Panama's IXP, Once Languishing.

112 Internet Society, Panama's IXP, Once Languishing.

113 Internet Society, Panama's IXP, Once Languishing.

launching a regional IXP in Panama.[114] In July 2023, AIG launched a market consultation inviting service providers to propose how best to implement it.[115]

Despite these recent improvements, the affordability picture appears mixed in rural communities. In 2021, the poverty rate across three Indigenous *comarcas*[116] was 79.9 percent in Ngäbe Buglé, 72.7 percent in Guna Yala, and 63.7 percent in Embera.[117] While these numbers improved modestly between 2019 and 2021, as shown in Figure 9, these rates remain significantly higher than those in non-Indigenous provinces. Fifty-seven percent of respondents from the Darién and comarcas responded to a 2019 ASEP study indicating that they use prepaid services for internet access, compared to only 7 percent of respondents from Panamá, the region that includes the country's capital city.[118] Ninety percent of respondents from Panamá region used postpaid services. Prepaid services are cheaper, on average, than postpaid services.[119] Prepaid mobile phone subscription cost USD 19 per month, compared to USD 29.2 per month for postpaid subscriptions, on average.[120] Prepaid internet-at-home packages also cost less, USD 33.1 per month compared to USD 42.5 for postpaid equivalents, on average.[121] Income disparities between urban areas and Indigenous *comarcas* may explain these preferences. One regional Indigenous expert indicated that these services may still be too expensive for most households.[122]

114 "Panamá rumbo a ser un Centro de Punto de Intercambio de Internet para la región," ElCapital Financiero.com, December 3, 2019, https://elcapitalfinanciero.com/panama-rumbo-a-ser-un-centro-de-punto-de-intercambio-de-internet-para-la-region/.

115 "Consulta al Mercado Servicio integral para el suministro, garantías, instalación, configuración, puesta en servicio, entrenamiento especializado y soporte técnico de equipos para la implementación del Punto de Intercambio de Internet (IXP) Regional de Panamá," AIG, accessed October 2023, https://aig.gob.pa/descargas/2023/07/consulta-al-mercado-2023-ixp-julio.pdf?csrt=18176211400962795022.

116 In Panama, comarcas refer to Indigenous regions where the rights to land and governance are recognized for Indigenous communities. These regions have their own systems of administration and laws that are separate from the national laws but still part of the Panamanian legal system. Panama's six comarcas include Guna Yala, Ngäbe Buglé, Emberá-Wounaan, Guna Madungandi, Guna Wargandí, and Naso Tjër Di.

117 Pobreza e indigencia por ingreso," MEF, October 2021, https://www.mef.gob.pa/wp-content/uploads/2023/08/MEF-DAES-Pobreza-e-Indigencia-por-ingreso-2021.pdf.

118 "Ipsos," ASEP, 2019, https://www.asep.gob.pa/wp-content/uploads/telecomunicaciones/encuestas/2019/encuesta_ipsos_1.pdf.

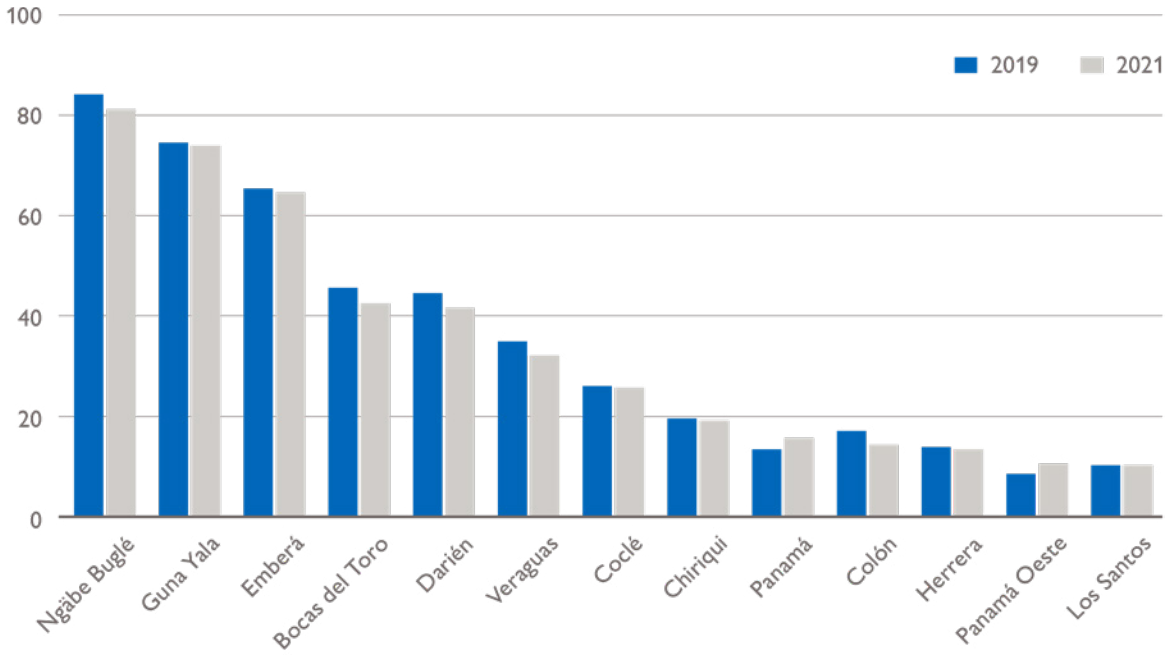
119 ASEP, Ipsos.

120 ASEP, Ipsos.

121 ASEP, Ipsos.

122 Regional Indigenous expert, interview by the DECA team, October 2023, online.

FIGURE 9: Poverty rates in Indigenous and non-Indigenous provinces, 2019 and 2021



Source: Ministerio de Economía y Finanzas

BOX 5: Toward gender parity in access and usage?

Not a single interviewee noted a disparity in access and usage of internet and mobile technology between women and men in Panama. Panama scored a 100 out of 100 on GSMA's 2022 Connectivity Index for both the gender gap in mobile ownership and in mobile internet, with a higher score representing stronger performance.[123] In 2019, 64 percent of women in Panama used the internet as compared to 63 percent of men, according to the ITU.[124] The same year, the world internet penetration rate for women was 48.4 percent as compared to 58.3 percent for men.[125] In the Americas, 76.8 percent of women used the internet as compared to 77.6 percent of men in 2019.[126] By comparison, a few of Panama's Central American neighbors struggle to close the gender digital divide. In 2021, Guatemala scored 61.5 on gender gap in mobile ownership and 72.4 in mobile internet, and Honduras 57.9 and 68, respectively.

As with affordability, this may look different in rural areas. Indigenous women, for example, face gender divides in many other facets of society. Indigenous women earn less than both non-indigenous women and their male counterparts. According to the World Bank, while indigenous men earn 57 percent less than their non-indigenous counterparts, indigenous women earn 70 percent less.[127] Indigenous women also have higher school dropout rates as compared with indigenous men, much fewer labor contracts in both the public and private sectors as compared to non-indigenous workers, and 93.7 percent work in the informal sector as compared to the 36.8 percent nationwide average.[128]

123 "Mobile Connectivity Index: Panama," GSMA, 2022, https://www.mobileconnectivityindex.com/index.html#year=2022&zoneIsocode=PAN&analysisView=PAN.

124 "ITU Digital Development Dashboard: Panama," ITU, 2022, https://www.itu.int/en/ITU-D/Statistics/Dashboards/Pages/Digital-Development.aspx.

125 "Measuring digital development Facts and figures 2019," ITU Publications, 2019, https://www.itu.int/en/ITU-D/Statistics/Documents/facts/FactsFigures2019_r1.pdf.

126 ITU, Measuring digital development.

127 "Indigenous Panama Seeks to Empower Its Women," World Bank, July 8, 2022, https://www.bancomundial.org/es/news/feature/2022/07/08/el-panama-indigena-busca-empoderar-a-sus-mujeres.

128 World Bank, Indigenous Panama.

BOX 5 (CONTINUED): Toward gender parity in access and usage?

Public sector and international development actors recognize that these gaps remain. In 2022, the IADB and the GoP launched the *Plan de Empoderamiento Económico de las Mujeres Indígenas de Panamá* (PEMIP).[129] The PEMIP consortium includes 32 public sector actors, including AIG and InfoPlazas, 18 civil society and private sector actors, five financial sector actors, and 15 international organizations, including IADB and the World Bank.[130] Among PEMIP's 10 goals is promoting digital inclusion, which includes expanding connectivity to Indigenous areas, lowering costs, and increasing digital literacy.[131]

1.2.2 ROOM FOR IMPROVEMENT IN ELECTRICITY AVAILABILITY

Few public or private sector actors highlighted access to electricity as a major hurdle in expanding internet connectivity throughout Panama. Yet, according to CEPAL, 14.8 percent of households do not have access to electricity.[132] Other countries that fall short of the regional average include Guatemala (16.5 percent), Nicaragua (14.3 percent), El Salvador (11.8 percent), and Honduras (9.6 percent).[133] Lack of electricity is particularly acute in rural areas. As shown in Figure 10 below, Panama's national electric grid is concentrated along Panama's major cities and roads, with few transmission nodes in the south and northeast. Only 4 percent of households in the Ngäbe–Buglé *comarca* have access to electricity.[134] Even the capital of the Ngäbe–Buglé *comarca*, *Llano Tugrí*, was unconnected to the national grid as of 2021.[135]

Private and public sector stakeholders are working to address these gaps. In May 2023, Panama's Secretary of Energy learned that a recent census revealed a wider gap in energy access than had previously been known to the government.[136] The GoP is working to close those gaps by 2030.[137] In July 2023, ENSA Grupo EPM, an energy company based in Panama, received a USD 100M loan from the IADB and Scotiabank to expand electricity access to communities in northeast Panama.[138] Some stakeholders remain doubtful that they will benefit from those investments. One regional Indigenous expert emphasized that Indigenous areas lack digital infrastructure because they lack quality infrastructure of any kind, including electricity.[139] This interviewee emphasized that the GoP has not prioritized investment in Indigenous areas.[140] This is significant for digital inclusion. As an interviewee noted, "where there is a power cable there is a fiber cable."[141]

129 Ana Grigera, "Mujeres indígenas: las nuevas hacedoras de políticas de Panamá," BID, October 27, 2022, https://blogs.iadb.org/igualdad/es/mujeres-indigenas-las-nuevas-hacedoras-de-politicas-de-panama/.

130 "Plan de Empoderamiento Económico de las Mujeres Indígenas de Panamá (PEMIP 2025)," Ministerio de Gobierno, accessed October 2023, https://www.mingob.gob.pa/lanzan-plan-de-empoderamiento-economico-para-mujeres-indigenas/.

131 Ministerio de Gobierno, Plan de Empoderamiento.

132 Rubén Calvo, Nicolás Álamos, Marco Billi, et al., "Desarrollo de indicadores de pobreza energética en América Latina y el Caribe," CEPAL, 2021), 30, https://www.cepal.org/es/publicaciones/47216-desarrollo-indicadores-pobreza-energetica-america-latina-caribe.

133 Rubén Calvo, Desarrollo de indicadores.

134 Nora Hampl, "Consume less or grow sustainably? Matching energy systems with Indigenous worldviews in Panama," Regional Studies, Regional Science 9, no.1 (2022): 412–424. https://www.tandfonline.com/doi/full/10.1080/21681376.2022.2081598.

135 Nora Hampl, Consume less or grow sustainably?

136 Mirta Rodríguez P, "Brecha de acceso a la energía eléctrica aumenta en Panamá," La Estrella de Panamá, May 10, 2023, https://www.laestrella.com.pa/economia/230510/brecha-acceso-energia-electrica-aumenta.

137 Mirta Rodríguez P, Brecha de acceso.

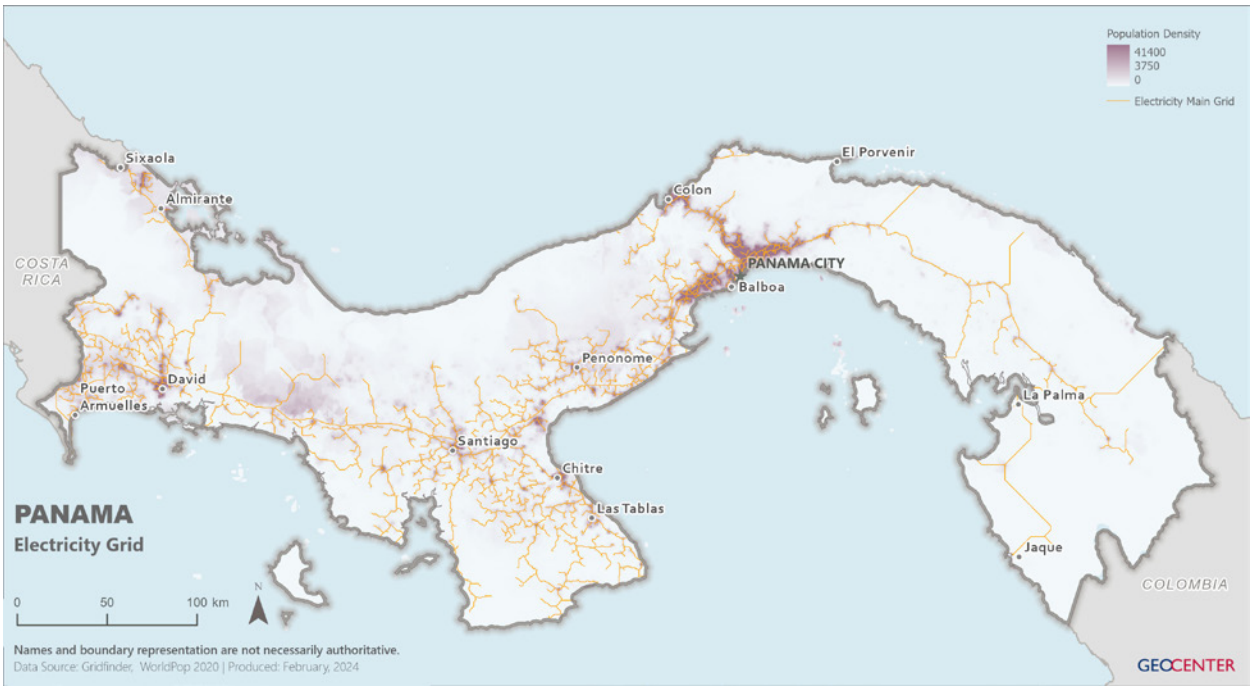
138 "Gestionan aumentar el acceso a la electricidad en zonas rurales en el noreste de Panamá," Día A Día, July 19, 2023, https://www.diaadia.com.pa/el-pais/gestionan-aumentar-el-acceso-la-electricidad-en-zonas-rurales-en-el-noreste-de-panama.

139 Regional Indigenous expert, interview by the DECA team, October 2023, online.

140 Regional Indigenous expert, interview by the DECA team, October 2023, online.

141 Internet organization, interview by the DECA team, July 2023, in person.

Figure 10: Panama's National Electric Grid



Source: Gridfinder[142]

1.2.3 DIGITAL LITERACY

Panama ranks 54 out of 100 countries on the Inclusive Internet Index and 7 in Latin America.[143] Among other Central American countries in the Index, Panama is ranked the highest, ahead of Guatemala (68), El Salvador (72), and Honduras (77), and behind Colombia (48).[144]

The GoP recognizes that digital literacy is an important component of internet access and usage. Both the 2021 and 2022 DNA featured digital literacy as a core component of combating poverty and inequality. The 2021 DNA highlighted a planned partnership with Microsoft, Linkedin, and GitHub to train public officials through the *opportunity.linkedin.com* platform. The 2022, DNA focused on working more intentionally with the InfoPlazas network (see Box 3) and expanding other initiatives designed for both women and rural communities.[145,146]

Private sector actors have played a large role in digital literacy in Panama. Millicom Tigo has implemented inclusion and digital education programs focused on digital tools to strengthen skills and competencies, aimed at key demographic sectors, such as women, children, and teachers. *Conectadas* is Tigo's digital literacy program focused on training women, young people, adults, professionals, and non-professionals on the benefits of technology and the internet, and its basic, intermediate, and advanced uses to help close the digital gap.[147]

142 Gridfinder is an open source tool for predicting the location of electricity network lines, using nighttime lights satellite imagery and OpenStreetMap data. The brown backbone connections are verified, whereas the green ones are inferred based on a statistical model. More information can be found here and here.

143 "Inclusive Internet Index: Panama," The Economist, accessed October 2023, https://impact.economist.com/projects/inclusive-internet-index/2022/availability?country=Panama.

144 The Economist, Inclusive Internet Index: Panama.

145 "Agenda Nacional Digital 2022," AIG, November 2022), 26. https://aig.gob.pa/documentosaig/agenda-digital/.

146 AIG, Agenda Nacional Digital 2022.

147 Telecom, interview by the DECA team, September 2023, online.

According to one telecom, *Conectadas* has trained more than 10,000 women through this program.[148] *Conéctate Segur@* is another of Tigo's flagship programs that educates children, parents, teachers, and caregivers about the risks and opportunities of digital technology, providing children with a safe way to learn, explore, and grow through the creative and responsible use of digital tools.[149] Tigo Panama has trained nearly 10,000 children through this program. Corporate volunteers are a fundamental part of the implementation of the teaching methodology of the *Conéctate Segur@* program.[150] *Maestr@s Conectad@s* supports the strengthening of digital skills for teaching and is aimed at teachers, trainers and trainers. Tigo launched this program in 2020 to strengthen education systems affected by the COVID-19 pandemic in the countries where Millicom operates. The program offers teachers more than 20 free online digital literacy courses. In addition, various training activities such as Masterclasses and regional Congresses are carried out to support teachers with innovative topics to develop in the classrooms. Tigo Panama has trained more than 12,000 educators with this program.[151] Tigo Panama created the *Emprendedores en Acción* program to strengthen the digital capabilities of entrepreneurs and SMEs through training in a hybrid format using innovation and leadership content.[152] It has reached 16,500 entrepreneurs since 2020.[153]

1.3 CYBERSECURITY IN THE TELECOMMUNICATIONS SECTOR

In Panama, a weak and outdated regulatory framework restricts a coordinated whole-sector approach to manage and contain cyber threats. Public and private sector actors agree that telecommunications infrastructure are critical services and assets. Partial or total disruption can lead to adverse consequences across many interdependent sectors, such as energy, finance, government, and health. Stakeholders are obligated to ensure that their organizations and staff meet robust safety criteria. MNOs have taken proactive steps to ensure that their own security policies, standards, and incident response capabilities meet international standards and best practices.

1.3.1 A PROACTIVE TELECOMMUNICATIONS SECTOR ADDRESSES CYBERSECURITY WEAKNESSES

While ASEP does not require telecommunications operators to adopt cybersecurity measures, several interviewees indicated that operators protect their own network infrastructure adequately, following international security standards and best practices.[154,155] Interviewees also indicated that they follow ISO 27000 security standards mainly, but NIST, and COBIT 5, among others, are also used as a reference. A public sector organization agreed, noting that telecommunications operators fully understand that their network infrastructure must be secure and resilient.[156] Operators have adopted security mechanisms, including firewalls and spam filters, to ensure continuity of the service and protect their customers from malicious attacks, such as denial of service, phishing, and identity theft.[157] A recent MT 2005 report points out that both the telecommunication and

148 Telecom, interview by the DECA team, September 2023, online.
149 Telecom, interview by the DECA team, September 2023, online.
150 Telecom, interview by the DECA team, September 2023, online.
151 Telecom, interview by the DECA team, September 2023, online.
152 Telecom, interview by the DECA team, September 2023, online.
153 Telecom, interview by the DECA team, September 2023, online.
154 Telecom, interview by the DECA team, September 2023, online.
155 Internet service provider, interview by the DECA team, July 2023, in person.
156 Public sector organization, interview by the DECA team, August 2023, online.
157 Telecom, interview by the DECA team, September 2023, online.

banking sectors in the region, including Panama, are making significant investments to advance incident response capabilities and data protection measures.[158]

Telecommunication operators have developed their own incident response capabilities through outsourced services, internal, or regional capabilities. The main telecommunication operations, such as Tigo, have locally developed security operation center capacities to monitor and protect their infrastructure from cyber incidents.[159] Operators do not seem to practice formal information-sharing and it is unclear if even informal information-sharing is a common practice.

Telecommunication operators are implementing sector-specific and internationally recognized security standards and best practices,[160] particularly when integrating emerging technologies, such as cloud storage and artificial intelligence.[161] Operators have integrated international standards, including the ISO 27,000 family of standards and best practices, such as multi-factor authentication mechanisms. A commercial and corporate ISP emphasized that they take security and data protection measures seriously, including the encryption and confidentiality of information. The ISP does not share personal data collected from users with third parties.[162] They have implemented security measures which align with the domestic data protection legislation, but did not indicate whether they go beyond these standards.

1.3.2 INADEQUATE REGULATORY FRAMEWORK AND AWARENESS CONSTRAINS CYBERSECURITY READINESS

While the private sector has taken steps to address gaps in its cybersecurity capabilities, gaps remain in the public sector. The GoP has not formally integrated robust security measures into the telecommunication regulatory framework. Without clear guidance, ambiguity can lead to under-preparedness. Article 42 of the 1996 General Telecommunications Law which addresses service interruptions, coupled with the quality of service directive,[163] maintains that any incident that interrupts service must be reported to ASEP. While it is true that telecommunication operators report cyber incidents, ASEP neither provides technical support, records the cyber incidents, nor facilitates the exchange of information between different actors. This limits the ability of the telecommunication sector to learn from past vulnerabilities, and prevent future cyberthreats.

Panama has a national computer security incident response team (CSIRT), but a public sector organization indicated that the GoP has no plans at this time to create a sectoral CERT within the telecommunication sector, since each operator is responsible for operating its services continuously, regularly, and efficiently, under normal conditions and security.[164] Sectoral CERTs provide sectoral members (e.g. banks, energy companies) with sector-specific expertise in incident handling and response capabilities, and in facilitating better decision-making in a crisis.[165] In Ecuador, ARCOTEL, the telecommunications regulator, created and manages the

158 "Telecomunicaciones y banca, industrias que más apuestan por la ciberseguridad en la región," Estrategiaynegocios.net, May 1, 2023, https://www.revistaeyn.com/tecnologia-cultura-digital/telecomunicaciones-y-banca-industrias-que-mas-apuestan-por-la-ciberseguridad-en-la-region-KD13239223.

159 Cybersecurity expert, interview by the DECA team, October 2023, online.

160 Telecom, interview by the DECA team, September 2023, online.

161 This information comes directly from interviews with telecommunication operators. The DECA team was unable to independently verify these data protection standards.

162 Internet service provider, interview by the DECA team, July 2023, in person.

163 ASEP, 2017, https://www.asep.gob.pa/?p=119473.

164 Public sector organization, interview by the DECA team, August 2023, online.

165 Edgars Taurins, Sectoral CSIRT Capabilities: Status and Development in the Energy and the Air Transport Sector, ENISA, December 2020), https://www.enisa.europa.eu/publications/sectoral-csirt-capabilities-energy-and-air-transport/@@download/fullReport.

EcuCERT, the telecommunications sectoral CERT, which also operates as a de facto national CERT.[166] In Panama, although operators work closely with CSIRT Panama, there is no sectoral cybersecurity committee that leads information-sharing and vulnerability disclosure practices.[167]

In recent years, the GoP has taken preliminary steps to integrate robust cybersecurity practices into the law. ASEP is currently working with the ITU to conduct a diagnostic intended to help the regulator harmonize the regulatory framework with international standards and best practices.[168] As ASEP does so, it may explore the applicability of key elements in other frameworks, including incident response management, implementation of international security standards (e.g., ISO 27,001), cyber risk management, supply chain security, incident reporting obligations, information-sharing and coordinated vulnerability disclosure mechanisms, and cyber crisis management plans.

ASEP recently adopted a regulation (Resolution 18,397-Telco of April 2023),[169] effective November 15, 2023, obligating operators to register personal data, including biometrics, of existing and new prepaid SIM card users. Since they are not registered, SIM cards have been used by criminals to commit crimes of fraud, kidnappings, extortion, and car theft.[170] In the past few years, the Panamanian Police have caught several organized criminal groups in different regions using SIM cards to commit crimes[171] or swapping SIM cards to commit identity theft.[172] Under the existing regulation, interviewees from the telecommunications sector emphasized that a customer's personal data can only be revealed by order of a competent authority and is processed under the highest security standards.[173,174]

While telecommunications actors are taking steps, the cyber hygiene capacity of users is still low. Only telecommunication operators regularly deliver relevant material, security notifications and alerts, and awareness-raising programs (e.g., *Conectate Seguro* from TIGO whose targeting community goes beyond customers)[175] to enhance their awareness level. At the ICT industry level, CAPATEC is active in organizing webinars and other training sessions on cybersecurity, but these activities are not intended to reach telecommunications sector customers.

166 "El Nuevo Ecuador," EcuCERT, n.d., https://www.ecucert.gob.ec/.

167 Public sector organization, interview by the DECA team, August 2023, online.

168 Public sector organization, interview by the DECA team, August 2023, online.

169 "AN No.18397-Telco de 2023-04-26," ASEP, April 26, 2023, https://www.asep.gob.pa/?p=209706.

170 "Operadores móviles en Panamá, con plazo para registro de chip prepago," Eco Tv, https://www.ecotvpanama.com/nacionales/operadore-moviles-panama-plazo-registro-chip-prepago-n5912851.

171 "Operación Gaspar deja 11 aprehendidos por robo de autos," Telemetro.com, May 17, 2023, https://www.telemetro.com/nacionales/operacion-gaspar-deja-11-aprehendidos-robo-autos-n5881902.

172 "Desarticulan grupo criminal dedicado a delitos financieros mediante la 'Operación Sim Swapping'," Radio Panamá, https://radiopanama.com.pa/desarticulan-grupo-criminal-dedicado-a-delitos-financieros-mediante-la-operacion-sim-swapping/.

173 Telecom, interview by the DECA team, September 2023, online.

174 Internet service provider, interview by the DECA team, July 2023, in person.

175 Telecom, interview by the DECA team, September 2023, online.

PILLAR 2: DIGITAL SOCIETY, RIGHTS, AND GOVERNANCE

Digital Society, Rights, and Governance focuses on how digital technology intersects with government, civil society, and the media. This pillar is divided into three sub-pillars: Internet Freedom; Civil Society and Media; and Digital Government. Internet Freedom explores factors that enable or constrain the exercise of human rights and fundamental freedoms online. This includes individual rights to freedom of speech, privacy, and free assembly, and the abuse of these rights through digital repression. Civil Society and Media identifies key institutions and how they report on, advocate around, and influence online freedoms. Digital Government looks at the government's efforts to manage internal information technology (IT) processes and systems, deliver citizen- and business-facing e-services, and engage with the public through digital channels.

KEY TAKEAWAYS

DIGITAL SOCIETY, RIGHTS, AND GOVERNANCE

- Panama has upgraded its digital governance framework, but resource constraints and poor interoperability hinder further advancement.
- Panama joins other countries with data protection laws, but implementation raises questions of how well the rights of the population are safeguarded both online and offline.
- Panama ranks higher than other countries in the region in press freedom and freedom of expression indexes, but media outlets struggle with judicial harassment in the absence of legal safeguards.

RELEVANT RECOMMENDATIONS

4. Advocate for the GoP to strengthen the legal and regulatory framework to protect human rights online
5. Encourage the GoP to bolster and maintain better data-driven and interoperable digital systems
6. Strengthen democratic pluralism through transparency and accessibility promotion
7. Bolster safeguards for journalists to protect media freedom

2.1 DIGITAL GOVERNMENT

Panama has made progress developing a digital governance framework to drive digital transformation. It ranks 82 out of the 193 countries included in the United Nations E-Government Development Index (EGDI)[176] with a score of 0.6956 in 2022. This put Panama above the regional average (0.6438). Panama's EGDI score has consistently improved since 2016 (see Figure 11). While Panama scored better than Honduras (0.3940), Nicaragua (0.5032), Guatemala (0.5111), and El Salvador (0.5519), it scored behind neighboring Colombia (0.7261), Mexico (0.7473), Costa Rica (0.7659), and Brazil (0.7910) in 2022 (see Figure 11).[177] Panama ranks 76 out of the 193 countries listed in the E-Participation Index (EPI)[178] with a 2022 score of 0.5114. This puts Panama behind neighboring Costa Rica (0.5568) and Colombia (0.7159) and ahead of Guatemala (0.3295) and Nicaragua

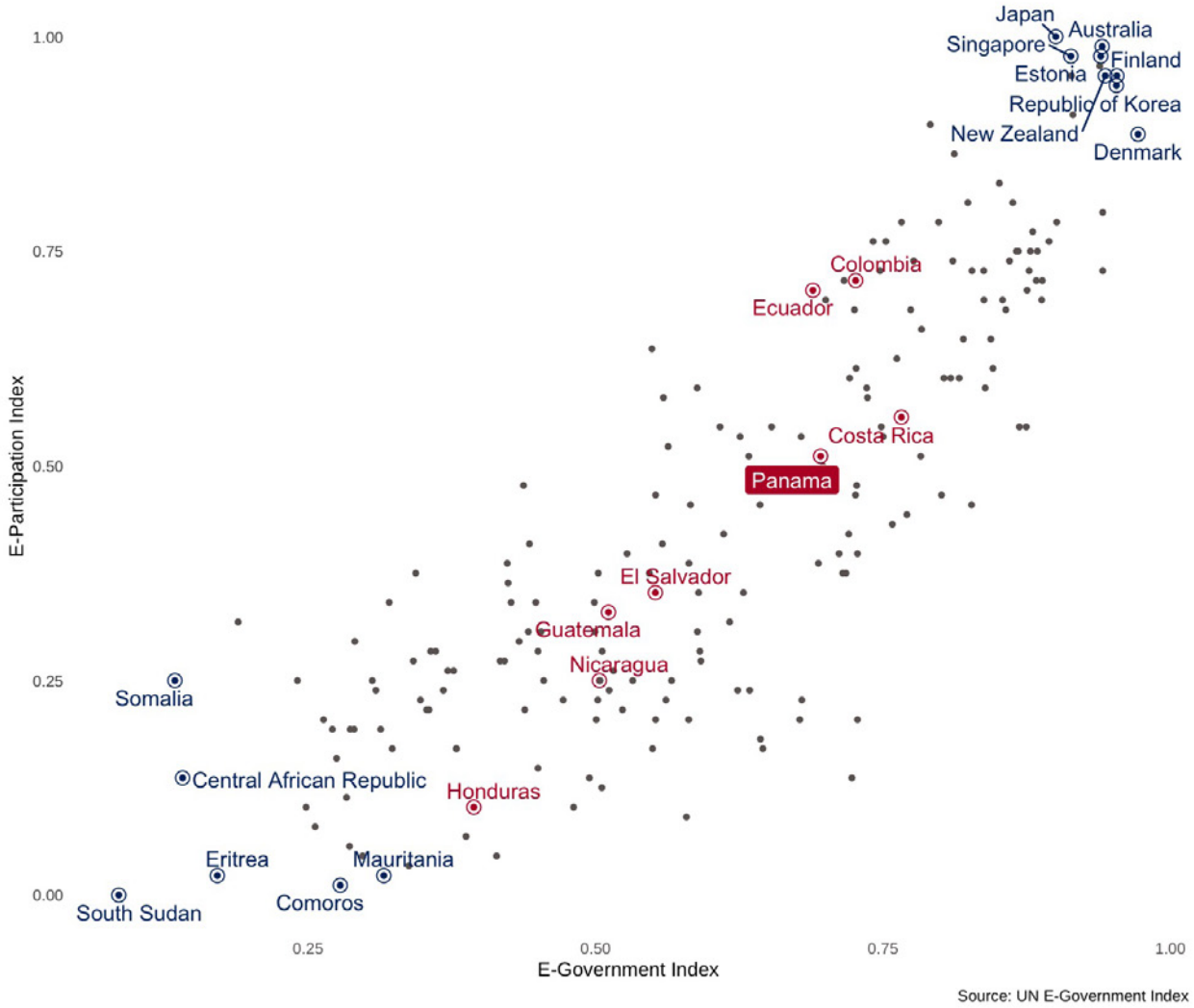
176 The EGDI is a measure used to assess the level of e-government development across 193 UN member states. It evaluates a country's commitment to digital innovation, a clear plan for achieving digital maturity across government agencies and stakeholders, a focus on accessibility and inclusivity, citizen engagement and service delivery (e.g., digital ID, digital mailbox, online tax services, etc.), and an emphasis on cybersecurity and data privacy. A culture of collaboration and knowledge-sharing between government agencies and stakeholders also contributes to the score. https://publicadministration.un.org/egovkb/en-us/About/Overview/-E-Government-Development-Index.

177 "UN E-Government Knowledgebase," Unit4ed Nations, 2022, https://publicadministration.un.org/egovkb/en-us/Data/Compare-Countries.

178 "E-Participation Index," UN E-Government Knowledgebase, United Nations, n.d., The EPI assesses the effectiveness of online services that facilitate information exchange and interaction between government and citizens, and citizen involvement in policy and decision-making. https://publicadministration.un.org/egovkb/en-us/About/Overview/E-Participation-Index.

(0.2500).[179] The GovTech Maturity Index (GTMI)[180] also noted Panama's improvement over the last few years. In 2022, Panama's GTMI score was 0.834 (compared with a regional average of 0.541 and a global average of 0.552).[181] However, despite notable progress, resource constraints and a lack of interoperable systems present challenges to furthering these transformation efforts.

FIGURE 11: Progress on the UN E-Government Development Index



Source: UN E-Government Development Index

2.1.1 PANAMA'S DIGITAL GOVERNANCE FRAMEWORK

In recent years, Panama has successfully established robust digital government frameworks as indicated by various national strategies for digital transformation. Panama's 2016 DNA, also known as PANAMA 4.0, focused on improving the management of ICT systems within the government, specifically their interoperability;

179 "UN E-Government Knowledgebase," United Nations, 2022, https://publicadministration.un.org/egovkb/en-us/Data/Compare-Countries.

180 The GovTech Maturity Index (GTMI) is a tool developed by the World Bank as part of the GovTech Initiative. Its purpose is to measure the maturity of GovTech in four focus areas: supporting core government systems, enhancing service delivery, mainstreaming citizen engagement, and fostering GovTech enablers.

181 "GovTech Maturity Index (GTMI) Data Dashboard," The World Bank, November 15, 2022, https://www.worldbank.org/en/data/interactive/2022/10/21/govtech-maturity-index-gtmi-data-dashboard.

improving public sector policy coordination and coherence; emphasizing the need to establish open data and personal data protection policies; and alignment with Panama's international commitments. These include the United Nations Sustainable Development Goals (UN SDGs), the Digital Agenda for Latin America and the Caribbean (eLAC 2018), as well as the e-Government Network of Latin America and the Caribbean (GEALC).[182]

KEY TERMS | BOX 4: Digital Government

Digital government[183] refers to the use of digital technologies as an integrated part of government modernization strategies to create public value.[184] Successfully navigating digital transformation requires more than adopting new applications. It requires a shift in processes and attitude toward agile and collaborative decision-making.

USAID's digital government model is built around three core functions: management of internal systems and processes, delivery of government services, and engagement of stakeholders. The performance of digital government initiatives depends on foundational elements such as change management, human capacity, legislation, policy, regulation, and infrastructure. Investment in these core components and foundational elements helps government bodies become more coordinated, efficient, resilient, responsive, accountable, and participatory.

Source: *USAID Digital Government Model*

PANAMA 4.0 was followed by the *Plan Estratégico del Gobierno* 2019–2024 (Strategic Plan of the Government 2019–2024)[185] and *Agenda Digital 2020: El Camino a un Ciudadano Digital* (Digital Agenda 2020: The Journey towards a Digital Citizen),[186] the main reference documents for the development and digital transformation of Panama.[187] These strategies highlight the need to move from e-government toward a fully digital government, following the Organization for Economic Cooperation and Development (OECD) Digital Government Review of Panama.[188] As a key component of the Digital Agenda 2020, the launch of the Panama Digital Hub, a 10-year strategy for advancing the ICT sector, aims to transform the nation into a global hub for digital innovation.[189] In 2020, AIG and the United Nations Development Programme (UNDP) announced collaboration to foster the engagement of various stakeholders in executing the "Digital Readiness Diagnosis" as an integral component of the Digital Transformation Program and the Digital Agenda 2020-2030. Panama is the fourth country in Latin America to undertake this initiative.[190]

Law 144 of 2020 was approved against the backdrop of the COVID-19 pandemic. This significant legislative development ushered in a series of crucial elements essential for the successful digital transformation of the government. These elements encompassed digitization, electronic payment mechanisms, digital document management, and the training of public employees. Article 13 of Law 144 of 2020 mandates that no public

182 "Strengthening Governance," OECD iLibrary, n.d., https://www.oecd-ilibrary.org/sites/615a4180-en/1/2/2/index.html?itemId=/content/publication/615a4180-en&_csp_=1b31dd2ce91604db3301a349bcfd2474&itemIGO=oecd&itemContentType=book.

183 USAID uses the term "digital government while other sources use terms like "e-government" or "e-services" to describe the same functions.

184 "USAID Digital Ecosystem Framework, USAID," cited April 28, 2022, https://www.usaid.gov/digital-development/digital-ecosystem-framework.

185 2019–2024 Strategic Government Plan for Panama," CEPAL, n.d., https://observatorioplanificacion.cepal.org/en/plans/2019-2024-strategic-government-plan-panama.

186 "Agenda Digital 2020, AIG, 2020," https://aig.gob.pa/descargas/2019/12/agenda-digital-2020-visual.pdf.

187 OECD, Strengthening Governance.

188 OECD, Strengthening Governance.

189 Panamá Digital Hub, República De Panamá, AIG, n.d., https://www.propanama.gob.pa/hub-digital/.

190 "Panamá lanza diagnóstico para la transformación digital," UNDP, October 28, 2022, https://www.undp.org/es/panama/noticias/panama-lanza-diagnostico-para-la-transformacion-digital.

entity may prevent the completion of procedures by electronic means, in addition to requirements for in-person courses, in cases where an electronic alternative exists or can be provided. This provision will be mandatory in formulating regulations involving procedures covered under the scope of this law.

TABLE 2: List of Policies Related to Digital Government in Panama

NAME	DESCRIPTION	TYPES
Agenda Digital 2020: El Camino a un Ciudadano Digital (Digital Agenda 2020: The Journey towards a Digital Citizen)[191]	Digital Agenda 2020 is one of the primary reference documents for Panama's digital development and transformation efforts. The strategy emphasizes the shift from e-government to a fully digital government, aligning with recommendations from the OECD Digital Government Review of Panama.	National
Digital Agenda 2014-2019 Panama 4.0	PANAMA 4.0, the DNA, aimed to drive digital transformation and strengthen AIG. In 2016, it was updated to align with international commitments and regional digital agendas, enhancing its scope.[192]	National
Plan Estratégico del Gobierno 2019-2024 (Strategic Plan of the Government 2019-2024)	The Strategic Plan of the Government 2019-2024 sets forth strategic objectives, goals, and instruments that will guide the country toward full digitalization.	National
Law 144	Law 144 of 2020 was ratified in April 2020, during the COVID-19 pandemic. It introduced essential elements crucial for a successful government digital transformation, including digitization, electronic payment systems, digital document management, and public employee training.	National
Plan Estratégico Nacional de Ciencia, Tecnología e Innovación (National Strategic Plan for Science, Technology, and Innovation) (PENCYT) 2019–2024[193]	PENCYT 2019 – 2024 is aligned with government priorities and defines the actions that in the long and short term must be adopted in terms of research and innovation to contribute to achieving the digital transformation of Panama.[194]	National
Panamá Solidario (Solidarity Panama) Plan[195]	Aimed at combating the COVID-19 pandemic, the Panamá Solidario Plan was a temporary emergency and social assistance plan which consisted of cash allowances and bags of food for people in need.	National
The Digital Agenda for Latin America and the Caribbean (eLAC)[196] 2020,[197] 2022,[198] 2024[199]	The eLAC Digital Agenda(s) fosters the use of digital technologies for sustainable development in Latin America and the Caribbean.	Regional

191 "Agenda Digital 2020," AIG, n.d., https://aig.gob.pa/descargas/2019/12/agenda-digital-2020-visual.pdf.

192 "Strengthening Governance," OECD iLibrary, n.d., https://www.oecd-ilibrary.org/sites/615a4180-en/1/2/2/index.html?itemId=/content/publication/615a4180-en&_csp_=1b31dd2ce91604db3301a349bcfd2474&itemIGO=oecd&itemContentType=book.

193 "2019–2024 Strategic Government Plan for Panama," CEPAL, n.d., https://observatorioplanificacion.cepal.org/en/plans/2019-2024-strategic-government-plan-panama.

194 "Resolución de Gabinete N° (De martes 07 de enero de 2020)," SENACYT, January 7, 2020, https://www.senacyt.gob.pa/wp-content/uploads/2020/01/GacetaNo_28936b_202001081-1.pdf.

195 "Inicia Nuevo Plan Panamá Solidario," Panamá Digital, July 08, 2021, https://www-panamadigital-gob-pa.translate.goog/Noticia/inicia-nuevo-plan-panama-solidario?_x_tr_sl=es&_x_tr_tl=en&_x_tr_hl=en&_x_tr_pto=sc.

196 The United Nations Regional Economic Commission for Latin-America (CEPAL) releases strategies of Regional Cooperation Activities on Latin-America and the Caribbean's Information Society every 2 years, called eLAC.

197 "Agenda Digital para América Latina y el Caribe (eLAC2020)," ONU, eLAC2020, https://conferenciaelac.cepal.org/6/es/documentos/agenda-digital-america-latina-caribe-elac2020.

198 "Digital Agenda eLAC2022," UN, eLAC2022, https://conferenciaelac.cepal.org/7/en/documents/digital-agenda-elac2022.

199 "Digital Agenda eLAC2024," UN, eLAC2024, https://conferenciaelac.cepal.org/8/en/documents/digital-agenda-elac2024.

On a regional level, Panama collaborates with Latin America and the Caribbean countries through the eLAC group. The 2020 eLAC Digital Agenda focuses on advancing digital communication and promoting the deployment of plans in remote regions while also championing digital technologies for disaster response.[200] In 2022, the eLAC group approved a Digital Agenda for Latin America and the Caribbean (eLAC2024)[201] establishing 31 policy priorities and actions at a regional level. These goals are organized into four pillars related to: a) infrastructure, connectivity, and skills; b) digital economy, entrepreneurship, innovation, sustainability; c) inclusion and digital state transformation; and d) new partnerships, trade integration, digital market, and cooperation.[202,203] The eLAC2024 also includes a cross-cutting gender perspective. In the Montevideo Declaration that emerged from its 2022 meeting, member countries pledged to enhance regional collaboration in digital affairs "by formulating a program of cooperation activities for the 2022–2024 period, facilitating dialogue, sharing of experiences, knowledge management, and capacity-building."[204] Panama is a founding member of the *Sistema de la Integración Centroamericana* (SICA) (Central American Integration System) which contributes to the process of Central American integration. Panama City hosted a Technical Assistance and Information Exchange (TAIEX) workshop in 2019 to foster cooperation on Copernicus satellite applications, to contribute to establishing Copernicus as a global practice, and to promote the uptake of Copernicus data in order to maximize its societal value in solving global challenges.[205]

The IADB is a close digital development partner for Panama. The GoP works closely with IADB to digitize public services and the national migration service, and to modernize Panama's justice system. In 2022, the GoP and IADB signed a USD 60M loan to advance digital transformation and the management of public services in Panama under the "Digital Panama" project. This loan focuses on enhancing cybersecurity and data management, improving efficiency and accessibility of government services, supporting digital talent training, and supporting the construction of the Digital Government Innovation Hub headquarters.[206] In 2023, the IADB granted USD 250,000 to drive the technological transformation of the National Migration Service of Panama.[207] Another IADB loan for USD 60M is designed to enhance the management of Panama's justice system using digital technologies. This loan will support the digital transformation of Panama's judiciary with a specific focus on three components: a) upgrading technology of the Automated Judicial Management System; b) enhancing the coverage and transparency of digital services; and c) bolstering the justice system's institutional capacity in information technology.[208]

200 "Panama," OECD iLibrary, 2020, https://www.oecd-ilibrary.org/sites/2e771943-en/index.html?itemId=/content/component/2e771943-en#tabn-2_PA.

201 UN, Digital Agenda eLAC2024, UN.

202 "Countries of the Region Approved the Digital Agenda for Latin America and the Caribbean eLAC2024," UN, eLAC2024, https://www.cepal.org/en/pressreleases/countries-region-approved-digital-agenda-latin-america-and-caribbean-elac2024.

203 "Digital Agenda for Latin America and the Caribbean (eLAC2024)," CEPAL, November 2022, https://repositorio.cepal.org/server/api/core/bitstreams/9e1f05c7-b1e9-4b74-881b-4b16de4bdb6e/content.

204 CEPAL, Countries of the Region.

205 OECD, Panama.

206 "Panama and Inter-American Development Bank Drive Digital Transformation of Public Services," IDB, May 18, 2022, https://www.iadb.org/en/news/panama-and-inter-american-development-bank-drive-digital-transformation-public-services.

207 "Supporting the digital transformation of the National Migration Service of Panama," IDB, https://www.iadb.org/en/whats-our-impact/PN-T1332.

208 "Panama to Modernize Justice System with IDB Support," IDB, September 28, 2023, https://www.iadb.org/en/news/panama-modernize-justice-system-idb-support.

TABLE 3: List of Relevant Stakeholders Related to Digital Government in Panama

NAME	DESCRIPTION	TYPES
AIG	• Established in October 2009 • Mandated to design, implement, and manage the National Digital Agenda.[209]	National/ Government
Ministerio de Trabajo y Desarrollo Labora (MITRADEL)[210]	• Established in 1969 • Responsible for GoP labor and social policy[211] • Key partner in the Panama Digital project.	National/ Government
SENACYT	• Facilitates the advancement of science, technology, and innovation across the private sector, government, academic-research institutions, and the broader population.[212]	National/ Government
ANTAI	• Established in 2013 • Fosters ethics, integrity, transparency, data protection, and accountability in the public sector.[213]	National/ Government
Mastercard	• Signed the Digital Country Partnership agreement with AIG to advance the National Digital Agenda. [214]	Private Sector
Ministerial Conference on the Information Society in Latin America and the Caribbean[215]	• Regional dialogue platform in Latin America and the Caribbean that will create ICT access and usage programs. • Launched the eLAC 2007 Action Plan, marking a regional commitment to reduce the digital divide by fostering ICT access and utilization in the region.	Regional
IADB	• One of Panama's biggest development partners with multiple projects on digital transformation and modernization of various government services.[216]	Regional
REDGELAC	• OAS member state working group that will share lessons learned and best practices for digital government implementation.	Regional
CAF	• Issued $350m loan for the digital transformation of Panama, including public services.[217]	Regional

209 Publio Cortés, "Superpowers granted to the aig by law 144 of 2020, complicates government's digitalization agenda in Panamá," November 20, 2020, https://legaladvisorpanama.com/en/2021/06/15/superpowers-granted-to-the-aig-by-law-144-of-2020-complicates-governments-digitalization-agenda-in-panama/.

210 "Ministerio de Trabajo y Desarrollo Laboral – Panamá," Mitradel, https://www.mitradel.gob.pa/.

211 "Ministerio de Trabajo y Desarrollo Laboral – Panamá: AUTORIDADES," Mitradel, https://www.mitradel.gob.pa/autoridades/.

212 "About Us," SENACYT, https://www.senacyt.gob.pa/en/about-us/.

213 "Antecedentes," Autoridad Nacional de Transparencia y Acceso a la Información, 2020, https://www.antai.gob.pa/antecedentes/.

214 "Panama becomes the first country in Latin America and the Caribbean to sign a Digital Country Partnership focused on promoting the Government's Digital Agenda," Mastercard, April 2021, https://www.mastercard.com/news/latin-america/en/newsroom/press-releases/pr-en/2021/april/panama-becomes-the-first-country-in-latin-america-to-sign-a-digital-country-partnership/.

215 "Ministerial Conference on the Information Society in Latin America and the Caribbean," ECLAC United Nations, https://www.cepal.org/en/subsidiary-bodies/ministerial-conference-information-society-latin-america-and-caribbean.

216 "What's our Impact," IDB, https://www.iadb.org/en/project-search?query=panama&f_sector=&f_country_name=&f_project_status=&f_approval_date=.

217 "Aprobación de USD 350 millones para la Estrategia de Transformación e Inclusión Digital en Panamá," CAF, March 2, 2021, https://www.caf.com/es/actualidad/noticias/2021/03/caf-aprueba-usd-350-millones-para-apoyar-la-estrategia-de-transformacion-e-inclusion-digital-en-panama/.

BOX 6: Strategies setting the foundation for significant digital transformation

The Panama Digital project[218] aims to enhance the efficiency of government procedures and services, to strengthen cybersecurity, safeguard and efficiently manage data, and to reduce costs associated with interactions with government agencies.[219] Panama Digital strives to "reduce the costs of interaction between citizens and businesses with the State through the use and adoption of technology, thus contributing to inclusive economic recovery."[220] The project will finance the design, construction and launch of the Digital Government Innovation Hub headquarters, improve its Single Portal for Citizens by integrating additional government agencies, and support the design and launch of the National Data Strategy. Panama Digital also aims to train public administrators on ICT and cybersecurity.[221] The project builds on the work of "Panama Online," a project launched by the IADB in 2016 that assisted the country in digitizing 400 government processes accessible to both citizens and businesses, such as COVID-19 vaccine registration. It also helped to deploy digital financial management solutions in 68 municipalities to enhance the efficiency and transparency of public resource management.[222]

2.1.2 RESOURCE CONSTRAINTS CHALLENGE DIGITAL GOVERNMENT TRANSFORMATION EFFORTS.

Panamanian citizens have access to a variety of digital government platforms. Chief among these platforms is Panama Digital, formerly known as "*Panama Tramita*." This platform represents the GoP's flagship project, boasting a user base of approximately two million individuals. The COVID-19 pandemic led to a substantial surge in its usage, as it has become the primary hub for handling social benefits.[223] The portal also features a job-posting platform which is used by more than 500 companies.[224] GoP actors such as MITRADEL also use the platform to list vacant positions and to register job seekers.[225] *Panama Emprende*, *Panama Compra*, and Panama Open Data are among other government platforms that engage both citizens and businesses. (see Box 7).

BOX 7: An inventory of platforms delivering government services

Panama Digital (previously Panama Tramita):[226] Panama Digital folds several administrative and governmental procedures into a single, online platform, which reduces bureaucracy, facilitates business operations, and improves the country"s competitiveness.

Panama Emprende:[227] This computer system is administered by the *Ministerio De Comercio E Industrias* and automates the process of notifying the GoP about the commercial registration of new businesses.

218 "Inicio," Panamá Digital, 2020, https://panamadigital.gob.pa/.

219 "Panama and Inter-American Development Bank Drive Digital Transformation of Public Services," IDB, May 18, 2022, https://www.iadb.org/en/news/panama-and-inter-american-development-bank-drive-digital-transformation-public-services.

220 "Support for the Program Panamá Digital," IDB, https://www.iadb.org/en/whats-our-impact/PN-T1306.

221 IDB, Panama and Inter-American Development Bank Drive Digital Transformation of Public Services.

222 IDB, Panama and Inter-American Development Bank Drive Digital Transformation of Public Services.

223 Angela Reyes, Benjamin Roseth, and Diego A. Vera-Cossio, "Tecnología, identificación y acceso a programas sociales: Datos experimentales de Panamá," BID, October 2021, https://publications.iadb.org/es/publications/spanish/viewer/Tecnologia-identificacion-y-acceso-a-programas-sociales-datos-experimentales-de-Panama.pdf.

224 "Digital Government Review of Panama: Enhancing the Digital Transformation of the Public Sector," OECD, September 20, 2019, https://www.oecd.org/countries/panama/digital-government-review-of-panama-615a4180-en.htm.

225 Public sector organization, interview by the DECA team, August 2023, virtual.

226 "Panama Digital," Panama Digital, n.d., https://www.panamadigital.gob.pa/.

227 "Bienvenido a Panamá Emprende," Panama Emprende, n.d., https://www.panamaemprende.gob.pa/.

BOX 7 (CONTINUED): An inventory of platforms delivering government services

Panama Compra:[228] The electronic system for public procurement of the Republic of Panama. Panama Compra ensures that public purchases and tenders are simple, effective, and transparent. Panama Compra is often considered a model of transparency in the region, along with ChileCompra.cl.

Panama Open Data:[229] A public open data platform led by AIG and the ANTAI that allows public authorities to publish data across several sectors, including health, education, public services, innovation, finance and banking, industry and commerce. As of February 2022,[230] the system had reached 3,000 publications, and had been visited by more than 143,000 users. One concern is whether government entities selectively publish data, thereby undermining the platform's claims of administrative transparency.

Panama en Obras: A portal that collects information on budget execution, payment percentages, and work progress of infrastructure projects. Data can be sectioned by province, sector, and sub-sector.

While these platforms boast large user bases, gaps and challenges have hindered further expansion. Interviewees noted that the primary challenge hindering the GoP's digital transformation is a governance issue. Frequent shifts in digital agendas reflect the absence of a long-term vision. These shifts often follow a change in administration, at which point new personnel cycle into key roles. This can be a hindrance to capacity-building and long-term projects across agencies. Greater stability may be needed to achieve overarching goals.[231] The lack of coordination and collaboration among digital ecosystem stakeholders is a common concern. Currently, AIG is the primarily stakeholder responsible for digital government policy and implementation across the three branches of government.[232] While AIG's leadership has resulted in well-defined strategies and implementations of various digital transformation projects, there is room for improvement. The OECD noted an over-dependence on AIG and a need for more policy clarity and better coordination among stakeholders.[233]

There are also financial and human resource constraints to digital transformation. According to one international development organization, the scarcity of qualified personnel has become a stumbling block.[234] Many stakeholders struggle to bring in the necessary talent due to limited financial resources. According to a public sector organization, it is very difficult "to attract to our public institution, for example, a good systems developer engineer. If private companies currently have limitations in bringing a good resource to their respective organizations, we are in a worse situation."[235] Interviewees emphasized the need for government institutions to have permanent budgetary resources to execute annual preventive and corrective maintenance plans, which allow for technology updates and licenses.[236] Despite these gaps, convincing both internal and external stakeholders of the necessity for this investment has posed a formidable challenge.

228 "Panama Compra," Panama Compra, n.d., https://www.panamacompra.gob.pa/Inicio/#/.

229 "Portal de Datos Abiertos alcanza 3000 publicaciones," AIG, February 15, 2022, https://aig.gob.pa/portal-de-datos-abiertos-alcanza-3000-publicaciones/.

230 "Datos Abiertos de Panamá," DAB, n.d., https://www.datosabiertos.gob.pa/.

231 International development organization, interview by DECA team, July 2023, in-person.

232 National Council of Government Innovation (Consejo Nacional para la Innovación Gubernamental), which is chaired by the President of the Republic and includes high-level government officials from different ministries, oversees AIG.

233 Enhancing the digital transformation of the public sector," OECD iLibrary, n.d., https://www.oecd-ilibrary.org/sites/615a4180-en/1/2/3/index.html?itemId=/content/publication/615a4180-en&_csp_=1b31dd2ce91604db3301a349bcfd2474&itemIGO=oecd&itemContentType=book.

234 International development organization, interview by the DECA team, July 2023, in-person.

235 Public sector organization, interview by the DECA team, August 2023, online.

236 Public sector organization, interview by the DECA team, August 2023, online.

Panama does not have a digital ID. In April 2023, Panama became the first country in Latin America and the Caribbean to sign a Digital Country Partnership with Mastercard to promote the GoP's DNA.[237] Under this agreement, Mastercard pledges to work with AIG to support the design of a digital ID system. No interviewees commented on the status of this partnership.

2.1.3 MANAGEMENT AND CITIZEN ENGAGEMENT SYSTEMS.

Panama has implemented a range of stringent regulatory measures concerning public sector transparency, open government data, interoperability, and personal data protection (see Box 8). Law No. 33, enacted on April 25, 2013, brought ANTAI into existence. This law also mandates the appointment of an Access to Information Officer and a dedicated team within every public institution responsible for promoting proactive transparency, open data initiatives, and managing information requests.[238] As of 2019, the GoP has filled Chief Data Officer (CDO) roles across 10 institutions. According to the OECD, the GoP has plans to fill CDO files within an additional 21 institutions.[239] A public sector interviewee noted that due to the scarcity of suitably trained individuals, this role is frequently incorporated into the duties of the compliance officer.[240] In 2019, Panama introduced Law No. 81 regulating the protection of personal data and interoperability.[241] In 2021, AIG introduced Resolution No. 52, which established the legal framework for the development of data centers for public and private enterprises.[242]

BOX 8: Regulatory instruments for data governance in public sector in Panama

Law No. 6 of 22 January 2002, also known as the Habeas Data law, is primarily concerned with the right of all persons to know and have access to all registers, files, or public data banks, with respect to their personal information or data that has been collected.

Law No. 83 of 9 November 2012, mandated public sector database interoperability and established policy to ensure that data is collected only once from a citizen or entity and then reused across different government systems as needed.

Executive Decree No. 51 of 4 February 2013 and Resolution No. 4 of 9 October 2014 created spatial data governance architecture in Panama. The *Instituto Geográfico Nacional Tommy Guardia* is responsible for managing, updating, and providing access to geospatial data in Panama.

Law No. 33 of 25 April 2013 created ANTAI to promote transparency in public management and ensure access to information.

Resolution No. 12 of November 16, 2015 established the National Interoperability and Security Committee (NISC). The NISC coordinates data interoperability efforts and is comprised of executive decision-making representatives and technical representatives from various institutions.

237 "Panama becomes the first country in Latin America and the Caribbean to sign a Digital Country Partnership focused on promoting the Government's Digital Agenda ," Mastercard, n.d., https://www.mastercard.com/news/latin-america/en/newsroom/press-releases/pr-en/2021/april/panama-becomes-the-first-country-in-latin-america-to-sign-a-digital-country-partnership/.

238 "Date Governance in Panama," OECD iLibrary, n.d., https://www.oecd-ilibrary.org/sites/615a4180-en/1/2/4/index.html?itemId=/content/publication/615a4180-en&_csp_=1b31dd2ce91604db3301a349bcfd2474&itemIGO=oecd&itemContentType=book#section-d1e7360.

239 OECD iLibrary, Data Governance.

240 Public sector interviewee, interview by the DECA team, July 2023, in-person.

241 "Ley 81 de 26 de Marzo 2019," Gaceta Oficial, March 26, 2019, https://www.gacetaoficial.gob.pa/pdfTemp/28743_A/72148.pdf.

242 Gaceta Oficial, Ley 81.

BOX 8 (CONTINUED): Regulatory instruments for data governance in public sector in Panama

Resolution No. 15 of 3 May 2016, established Panama's interoperability framework, including the creation of a data exchange network, the Registry of National Management Services, connecting GoP institutions across the country.

Executive Decree No. 511 of 24 November 2017 adopts the GoP's public policy of open data transparency. This decree is part of the broader efforts by the GoP to promote transparency, efficiency, and accountability through the use of technology and digitalization.

Law No. 81 of 26 March 2019 established the principles, rights, obligations, and procedures that regulate the protection of personal data in Panama.

Executive Decree No. 285 of May 2021 supplements Law No. 81 by recommending, but not mandating, the appointment of a data protection officer for private entities, obligating database custodians to implement security measures, to inform the controller when a breach of personal data occurs, and to collaborate with the data controller to ensure compliance. The Decree details penalties ranging from USD 1,000 to USD 10,000 that ANTAI may levy depending on the severity of the infringement. ANTAI has processed more than 100 data protection violation complaints since approval of Law No. 81.

Resolution 52 of 10 September 2021, provides guidelines for the location of databases that operate under the concept of cloud computing or cloud services. **Resolution No. 45** of August 31, 2023 postponed implementation of the location of databases until February 29, 2024.

Source: OECD Digital Government Review of Panama: Enhancing the Digital Transformation of the Public Sector, 2019.

AIG has worked with the Organization of American States (OAS) and the Canadian International Development Agency since 2004 to improve local government digital systems through the *Municipios Eficientes y Transparentes* (MuNet) program. Between 2004 and 2017, MuNet provided e-government portals for several municipalities. These e-portals provide services such as tax management, license plate registration, business registration, and commercial notices.[243] The project has also helped to develop financial management systems, property and land databases, and provided information about tourist and religious sites, school information, and connections to hotels and craft centers.[244] An early appraisal of MuNet in 2010 found few officials from the then 28 participating municipalities who rated these systems highly in terms of transparency, reliability, and relevance.[245] The OAS ceased funding the MuNet program in 2015, and it is unclear if AIG continued activities beyond Phase III in 2017.

The GoP has also adopted twin evaluation methodologies to track digital government modernization. Both offer the GoP an internal framework to evaluate performance. In 2016, AIG adopted the Digital Government Progress Indicators (INAGOB) and the Computer Compliance Indicators (ICI). INAGOB measures progress against four dimensions on a yearly basis—procedures, citizen attention, access to information, and governance.[246] ICI are built into a self-assessment tool for use by each GoP institution. The ICI scores compliance across 26 categories of systems management, ranging from maintenance and procurement to risk mitigation and access

243 Yannisse Vergara, AIG invierte más de 800 mil dólares en modernización digital," TVN, August 15, 2015, https://www.tvn-2.com/entretenimiento/tecnologia/innovacion/aig-invierte-modernizacion-gobiernos-locales_1_1750875.html.

244 "Proyecto de Municipios Digitales," AIG, n.d., https://aig.gob.pa/modernizacion-gobierno-locales/.

245 https://www.ruii.ipn.mx/index.php/RUII/article/view/9/PDF.

246 "Marco de Gobernanza de Gobierno Digital," AIG, n.d., https://aig.gob.pa/descargas/2020/07/libro_mggd.pdf.

and use of the internet. Compliance data from the ICI are intended to feed into national strategies and operations plans for individual institutions.[247]

TABLE 4: List of Organizations in Panama working toward a data-driven public sector

NAME	ACTIVITIES
Ministerio de Economía y Finanzas (The Ministry of Economy and Finance, MEF)	Creates monthly reports that monitor social indicators to provide insights for shaping the policy agenda.
Instituto para la Formación y Aprovechamiento de Recursos Humanos (The Institute for the Development and Use of Human Resources, IFARHU)	Examines the experiences of 600,000 eligible Universal Scholarship students and analyzes how their experiences relate to other data and social indicators.
Secretaría Nacional de Energía (The National Energy Secretariat)	Predicts trends in fuel and electricity consumption to gain insights into how climate conditions affect demand.
Ministerio de la Mujer (The Ministry of the Women)	Establishes a set of regularly collected indicators to serve as an analytical foundation for shaping public policy.
Ministerio de Salud Caja de Seguro Social (The Ministry of Health and Social Security Fund, MINSA-CSS)	Leverages the GESNA platform to strategize healthcare and related services for 255,356 registered patients aged over 40 years, encompassing a total of 340,719 medical interventions (considering multiple interventions for a single patient).
Ministerio de Agricultura (The Ministry of Agriculture, MIDA) and the Instituto de Mercadeo Agropecuario (Institute of Agricultural Marketing, IMA)	Gathers comprehensive information from 14,752 farmers and 7,409 producers through the SIAN platform, facilitating collaboration with other sectoral agencies and programs for tailored assistance and planning.

Source: OECD, 2019

Panama has been a member of the Open Government Partnership since 2012 and has published five action plans (Panama Open Government National Action Plan 2013–2014,[248] 2015–2017,[249] 2017–2019,[250] 2021–2023,[251] 2023–2025[252]). In 2015, the GoP established the Open Government Commission to serve as a continuous platform for government-civil society dialogue.[253] Its primary role is to oversee and assess the fulfillment of the country's commitments. The commission is comprised of 11 members, with three representing the government, six from non-governmental organizations, and two serving as observers (See Table 5).[254] In the 2023–2025 Action Plan, Panama prioritizes six strategic objectives for the future. These include open contracting in Panama's public infrastructure, promoting access to information on the environment, transparency in national

247 AIG, Marco de Governanza.

248 "Panama Action Plan 2013–2014," Open Government Partnership, October 23, 2015, https://www.opengovpartnership.org/documents/panama-action-plan-2013-2014/.

249 "Panama, Segundo Plan de Accion, 2015–2017," Open Government Partnership, October 23, 2015, https://www.opengovpartnership.org/documents/panama-segundo-plan-de-accion-2015-17/.

250 "República de Panamá Segundo Plan de Acción Nacional 2015-2017," Open Government Partnership, 2012, https://www.opengovpartnership.org/wp-content/uploads/2017/05/Panama%CC%81_Plan_2015-17_Actualizado_0.pdf.

251 "National Action Plan 2021–2023," Open Government Partnership, n.d., https://www.opengovpartnership.org/wp-content/uploads/2021/08/Panama_Action-Plan_2021-2023_EN.pdf.

252 "Plan de Acción Nacional de Gobierno Abierto, 2023-2025," Open Government Partnership, n.d., https://www.opengovpartnership.org/wp-content/uploads/2023/08/Panama_Action-Plan_2023-2025.pdf.

253 Open Government Partnership, Segundo Plan.

254 "National Open Government Commission of Panama," CEPAL, n.d., https://observatorioplanificacion.cepal.org/en/institutions/national-open-government-commission-panama.

government budgeting, promoting civic education, an open government school, and access to sex education for adolescents.[255]

TABLE 5: Members of the Open Government Commission

NAME	SECTOR
ANTAI	Government
AIG	Government
Ministry of the Presidency	Government
Foundation for the Development of Citizen Liberty (*Fundación para el Desarrollo de la Libertad Ciudadana*), Chapter of Transparency International in Panama	Civil Society
Environmental Advocacy Center (*Centro de Incidencia Ambiental* – CIAM)	Civil Society
Unlimited Generation Foundation (*Fundación Generación Sin Límites*)	Civil Society
Organization Together We Decide	Civil Society
Kernel Community Think Tank	Civil Society
Citizen Alliance for Justice (Alianza Ciudadana por Justicia)	Observers
United Nations Development Program (PNUD)	Observers

Source: Regional Observatory on Planning for Development

Government and non-governmental organizations in Panama promote the importance of public data. Between 2019 and 2020, the Trust for the Americas, the OAS, ANTAI, AIG, IPANDETEC, and the *Direccion General Contrataciones Publicas* (DGCP), the Directorate General of Public Procurement worked together to build open data capacity. Activities included workshops on open government principles with public officials, sharing best practices on how to use open data, and providing up to USD 7,500 seed funding for small projects to use open data in new ways.[256] Successful projects included a proposal to redesign the social security fund's open data portal, and a proposal to improve GoP budget transparency.[257] One activity trained 25 young people to be champions of open data in their local communities.[258]

Over the past decade, the GoP has also laid the groundwork for interoperability. Between 2012 and 2016, the GoP mandated interoperability for all government databases, established a national interoperability committee, and launched an interoperability framework.[259,260] Panama also launched two nationally accessible cloud-based networks—the *Nube Computacional Gubernamental* (NCG), the government cloud system, and the *Red Nacional Multiservicios* (RNMS), a government multiservice network. Despite the NCG and RNMS objective to provide

255 Open Government Partnership, Plan de Acción.

256 "Empowering Innovation and Citizen Collaboration Through Public Data in Panama 2018–2020," Trust for the Americas, 2021, https://www.trustfortheamericas.org/media/press-room/kits/versions/en/Ingles_-_Difusion.pdf.

257 Trust for the Americas, Empowering Innovation.

258 "The Trust for the Americas launches Youth for Open Data Campaign in Panama," Trust for the Americas, May 26, 2020, https://www.trustfortheamericas.org/press-room/releases/launch-y4od-panama.

259 "Ley 83 de 9 de noviembre 2012," AIG, 2012, https://aig.gob.pa/descargas/2019/08/ley-83-del-9-de-noviembre-2012.pdf?csrt=18345830013161323733.

260 "Resolucion No. 15 3 de mayo 2016," AIG, 2016, https://aig.gob.pa/descargas/2019/06/Resolucion15_2016ApruebaEsquemadeInteroperabilidadCNIG.pdf.

secure data-sharing among government institutions, citizens still report bottlenecks. In 2019, the OECD found that on multiple occasions, citizens needed to share information directly with public sector actors who were already supposedly accessible through these systems.[261]

Centro de Atención Ciudadana 311 is one of the most well-known citizen engagement platforms. It operates a 24-hour call center for complaints, requests, and access to information about government services.[262] In 2020, ASEP received more than 2,000 complaints about unreliable electricity and other subpar services.[263] In 2023, MINSA's Panama Sanitation Program reported that it responded directly to complaints filed on 311 by a community beset by poor wastewater management.[264] While the platform received an OGP Impact Award in 2021,[265] the quality of the service may have declined in recent years. In 2022, one of the platform's original architects reported declining customer satisfaction with response rates, declining staffing, and outdated backend technology.[266]

2.2 INTERNET GOVERNANCE IN PANAMA

Internet governance is defined as "the development and application by governments, the private sector, and civil society, in their respective roles, of shared principles, norms, rules, decision-making procedures, and programs that shape the evolution and use of the internet."[267] Internet governance covers topics such as internet identifier management, information-sharing, coordinated malware analysis, and incident response, standard design and adherence, and domain management. The growth of the internet as a global, decentralized system has favored a multi-stakeholder approach, often operating through a combination of global and country-level fora.

Panama is a member of regional and international governance networks. The Internet Governance Forum (IGF), convened by the United Nation Secretary General, is a global multi-stakeholder forum for discussion of internet governance best practices. The national IGF in Panama was founded in 2017 to facilitate dialogue between the public and private sector, civil society, and the technical and academic communities concerning the development of the internet and new technologies. The most recent annual meeting of IGF Panama was held in person in July 2023 in Panama City. The meeting focused on three thematic areas: artificial intelligence and emerging technologies, cybersecurity in the context of internet governance, and digital gaps and inclusion.[268] Key stakeholders involved in the organizing committee included representatives from *Ciudad del Saber*, the Internet Society, AIG, *Universidad de Panama*, the Digital Innovation Alliance, *Cámara Panameña de Tecnologías de Información, Innovación y Telecomunicaciones* (CAPATEC), SENACYT, IPANDETEC, *Fundacion Vida Segura*, Institute of Electrical and Electronics Engineers (IEEE), *InfoPlazas AIP*, and nic.pa. IGF Panama is also a member

261 "Service design and delivery," OECD iLibrary, n.d., https://www.oecd-ilibrary.org/sites/a4078b55-en/index.html?itemId=/content/component/a4078b55-en.

262 "Centro de Atención Ciudadana 311," AIG, n.d., https://aig.gob.pa/311panama/.

263 "Asep de Panamá recibió dos mil quejas vía 3-1-1," bnamericas, April 22, 2021, https://www.bnamericas.com/es/noticias/asep-recibio-dos-mil-quejas-via-3-1-1.

264 "Nueva red sanitaria de San Fernando registra 90% de avance," El Siglo, September 6, 2023, https://elsiglo.com.pa/panama/nacionales/nueva-sanitaria-fernando-registra-90-avance-JJES24234387.

265 "2021 OGP Impact Awards: Panama – Hotline 311," Open Government Partnership, December 15, 2021, https://www.opengovpartnership.org/stories/2021-ogp-impact-awards-panama-hotline-311/.

266 Tereza Espinoza, "¿Qué ha pasado con el Centro de Atención Ciudadana 311?" TVN, September 27, 2022, https://www.tvn-2.com/nacionales/pasado-centro-atencion-ciudadana-311_1_2008501.html.

267 "USAID Digital Ecosystem Country Assessment," USAID, May 10, 2022, https://www.usaid.gov/digital-development/deca-toolkit.

268 "Save the Date," IGF Panama, n.d., https://igfpanama.pa/.

of IGF Central America, a sub-regional IGF, along with Guatemala, Honduras, El Salvador, Nicaragua, and Costa Rica.[269]

Panama is also a member of the Internet Corporation for Assigned Names and Numbers (ICANN) and LACNIC. ICANN coordinates internet protocol addresses and domain names that people and devices use to connect to the internet. Panama formalized its relationship with ICANN in 2006, and the *Universidad Tecnologica de Panama* is authorized as the entity in charge of administration of the Country Top-Level Domain (ccTLD) .pa.[270] LACNIC manages internet number resources within the region.[271]

2.3 HUMAN RIGHTS ONLINE AND REPRESSION

In 2019, Panama joined 11 Latin American countries with a personal data protection regime, including Brazil and Ecuador.[272] Private and public sector actors have heralded the new legislation as balancing the need for privacy without compromising economic activity. However, civil society has voiced concerns that implementation of the data protection law—particularly against media professionals—along with other digital repression tactics, threatens to close civic space. Vulnerable groups are also often subjected to online violence.

2.3.1 A DATA PROTECTION LAW IS A NOTEWORTHY ADVANCEMENT, BUT IMPLEMENTATIONS RAISE CONCERNS.

In Central America, Panama ranks high for freedom of expression and other rights. Panama is rated as "Free" by the 2023 Freedom in the World Index, Freedom House's annual study of political rights and civil liberties worldwide, scoring 83 out of 100 overall, and 48 out of 60 in civil liberties.[273] By comparison, Costa Rica scored 91 out of 100, Colombia scored 70 out of 100, El Salvador 56 out of 100, Guatemala 49 out of 100, and Honduras 48 out of 100. The Panamanian Constitution of 1972 safeguards the right to privacy, freedom of expression, freedom of assembly, the right of access to personal information, the right of access to public information, and the right to establish a habeas data procedure to correct, update, rectify, delete or protect the confidentiality of personal data held by public and private organizations.[274]

In 2019, Panama approved Law No. 81, the country's first Data Protection Law,[275] based on the European Union's General Data Protection Regulation (GDPR).[276] ANTAI is the supervising authority that oversees its implementation[277] Under Law 81, data processors are obligated to secure prior consent from data subjects and define the purpose of data collection. Data collectors are mandated to take measures to ensure data security. This legislation has enhanced the protection of private data and personal information, rooted in the

269 IGF Panama, Save the Date.

270 "ICANN Formalizes Relationship with ccTLD Manager for Panama," ICANN, December 4, 2006, https://www.icann.org/en/announcements/details/icann-formalizes-relationship-with-cctld-manager-for-panama-4-12-2006-en.

271 "About LACNIC," LACNIC, n.d., https://www.lacnic.net/1004/2/lacnic/about-lacnic.

272 Arturo J. Carillo, Matias Jackson, "Follow the Leader? A Comparative Law Study of the EU's General Data Protection Regulation's Impact in Latin America," May 26, 2022, https://www.degruyter.com/document/doi/10.1515/icl-2021-0037/html?lang=en.

273 "Freedom in the World 2023," Freedom House, 2023, https://freedomhouse.org/country/panama/freedom-world/2023.

274 "Panama 1972 (rev. 2004)," Constitute Project, 2004, https://www.constituteproject.org/constitution/Panama_2004.

275 "Ley N° 81 (De martes 26 de marzo de 2019)," Gaceta Oficial, March 29, 2019, https://www.gacetaoficial.gob.pa/pdfTemp/28743_A/GacetaNo_28743a_20190329.pdf.

276 "Will Panama's Data Protection Law Become a Model?" The Dialogue, April 16, 2021, https://www.thedialogue.org/analysis/will-panamas-data-protection-law-become-a-model/.

277 "Panama – Data Protection Overview," OneTrust Data Guidance, August 2023, https://www.dataguidance.com/notes/panama-data-protection-overview.

fundamental principle that private data is the rightful possession of each individual citizen. Most transfers of personal data necessitate prior consent from the data titleholder, typically the individual.[278]

Panama's data protection law also created a multistakeholder group to guide its implementation. The Data Protection Council include representatives from the Ombudsman, the *Ministerio De Comercio E Industrias*, the National Council of Private Enterprise (CONEP), the National Bar Association (CNA), the *Asociación Bancaria de Panamá* (ABP), the Electoral Court (TE), the *Cámara De Comercio Industrias y Agricultura De Panamá* (CCIYAP) and AIG. The council's primary functions are to advise ANTAI, recommend public policies, evaluate cases, and provide recommendations.

The rollout of the new data protection regime has not been completely smooth. According to a public sector interviewee, Panama continues to maintain outdated data protection standards. In addition, the legal framework governing data protection has not yet been brought into complete alignment, which can confuse implementation. While the law says that regulations apply to the Republic of Panama, Decree no. 285 says that they do not.[279] One public sector interviewee estimates that compliance with the data protection law stands at 50 percent across both the public and private sectors.[280] One reason for this may be that fines for non-compliance are too low. Law 81 established two sets of fines—a pecuniary fine between USD 1,000 to USD 10,000, and a sanctioning fine. By comparison, GDPR permits fines up to 20 million euros, or 4 percent of a penalized company's revenue.[281] ANTAI also faces financial resource constraints related to multifaceted responsibilities, from transparency, conflicts of interest, access to information rights, and the safeguarding of personal data—all on a single budget.[282] Civil society and media organizations are not represented on the Data Protection Councils. One interviewee from civil society noted that the council may not have as much input into implementation as it should. Two years after the law entered into force in 2021, it has yet to issue its internal operating regulations.[283]

Media groups also expressed concern about the law's implementation. ANTAI's interpretation of the law has allegedly led to an encroachment on freedom of expression. One interviewee pointed out a recent controversial case in which ANTAI fined a news outlet for publishing a picture of a politician.[284] On February 24, 2022, ANTAI fined *La Prensa* USD 5,000 for publishing a photograph of politician Benicio Robinson, congressman and president of the Democratic Revolutionary Party without his explicit consent.[285] In June 2022, ANTAI also fined digital outlet *La Verdad Panama* USD 1,000 for the publication of a marriage certificate in a press report.[286]

Government institutions have allegedly used the data protection law to prevent the release of important public information.[287] One journalist believes that ANTAI's actions are often politically motivated, and the data

278 The Dialogue, Will Panama's.

279 Civil society organization, interview by DECA team, July 2023, in-person.

280 Public sector interviewee, interview by the DECA team, July 2023, in-person.

281 "Panama Data Protection Law: much lower fines than GDPR," Interact Law, June 13, 2019, https://www.interact.law/older-news/panama-data-protection-law-much-lower-fines-than-gdpr/.

282 Public sector interviewee, interview by the DECA team, July 2023, in person.

283 Civil society organization, interview by the DECA team, July 13, 2023.

284 Human rights online expert, interview by the DECA team, July 2023, in person.

285 Brenda Medina, Carmen Melina Acosta, 'It's a poisonous cocktail': How legal threats are being leveraged against journalists in Panama," International consortium of Investigative Journalists (ICIJ), May 3, 2023, https://www.icij.org/inside-icij/2023/05/its-a-poisonous-cocktail-how-legal-threats-are-being-leveraged-against-journalists-in-panama/.

286 "Gremios periodísticos: Multa de ANTAI contra medio de comunicación establece un 'precedente peligroso'," TVN, June 3, 2022, https://www.tvn-2.com/nacionales/gremios-periodisticos-multa-antai-comunicacion_1_1004160.html.

287 "2022 Country Reports on Human Rights Practices: Panama,": US Department of State, Bureau of Democracy, Human Rights, and Labor, n.d., https://www.state.gov/reports/2022-country-reports-on-human-rights-practices/panama/.

protection law is used to firewall information from fair legal processes.[288] Organizations like Reporters without Borders and *Colegio Nacional de Periodistas de Panamá* (CONAPE) have warned that these cases set a poor precedent and may encourage self-censorship.[289,290]

2.3.2 DIGITAL REPRESSION IS RARE, BUT INSTANCES OF GENDER-BASED ONLINE VIOLENCE RAISE RED FLAGS

Digital repression refers to the use of digital technologies to infringe upon human rights. This encompasses a range of tactics such as surveillance, censorship, social manipulation, disinformation campaigns, internet shutdowns, and the deliberate targeting of online users for persecution.[291] The GoP has neither imposed internet access restrictions nor censored online content.[292] However, in the last decade, misuse of surveillance has raised concerns about the willingness of political administrations to buck this trend, especially as Panama prepares for elections in 2024.

In 2017, television network Univision reported that Panama's National Security Council had signed a $13.4 million contract with the NSO Group to deploy Pegasus spyware. Pegasus is a spyware program that breaks the encryption of communication devices and extracts private data for public authorities. This contract involved the potential surveillance of 150 individuals by the GoP, including at least two Americans.[293] The Panamanian Public Ministry prosecuted former President Ricardo Martinelli for alleged espionage on activists, journalists, diplomats, and members of political parties.[294] In October 2019, President Martinelli was found not guilty on all charges, a decision later overturned by an appeals court in 2020.[295]

Civil society has also been concerned about instances of tech-facilitated gender-based violence. IPANDETEC's "Segur@s online," project has noted 144 incidents of what the project classifies as digital violence involving women; 88 of these incidents involve online harassment.[296] Anonymous testimonials available on the platform share instances of intimate partners threatening to share private material online, online stalking, and cyberbullying. In 2020, judicial authorities concluded a three year-long investigation into the cyberbullying of Piky Zubieta, a social media personality.[297] Zubieta had received death threats from an anonymous stalker through multiple online accounts.[298] While receiving a ruling in her favor, Zubieta reflected that the lack of legal regulation against cyber sexual harassment had prolonged the case and subjected her and her family to unnecessary

288 Media interviewee, interview by the DECA team, July 2023, in person.

289 Eliana Medina Gil, "Reporteros Sin Fronteras advierte sobre el acoso judicial a los periodistas en Panamá," La Prensa, May 8, 2023, https://www.prensa.com/politica/reporteros-sin-fronteras-advierte-sobre-el-acoso-judicial-a-los-periodistas-en-panama/.

290 TVN, Gremios periodísticos.

291 Steven Feldstein, "The Rise of Digital Repression," Oxford University Press, April 27, 2021, https://global.oup.com/academic/product/the-rise-of-digital-repression-9780190057497?cc=us&lang=en&.

292 "2022 Country Reports on Human Rights Practices: Panama," US Department of State, Bureau of Democracy, Human Rights, and Labor, 2022, https://www.state.gov/reports/2022-country-reports-on-human-rights-practices/panama/.

293 Gerardo Reyes, David C. Adams, Juan Cooper, et al., "Panama's ex-president wiretapped Americans, according to court documents," Univision,June 24, 2017, https://www.univision.com/univision-news/latin-america/exclusive-panamas-ex-president-wiretapped-americans-according-to-court-documents.

294 Karine Pfenniger, "Pegasus Project: What Has Happened Since the Revelations?" Pegasus Project, July 17, 2023, https://forbiddenstories.org/pegasus-project-impacts-map/.

295 "El expresidente de Panamá Ricardo Martinelli, absuelto por segunda vez en el caso de escuchas ilegales," RTVE, October 11, 2021, https://www.rtve.es/noticias/20211110/caso-pinchazos-ricardo-martinelli-absuelto/2220560.shtml.

296 https://www.segurasenlinea.ca/violencia-digital.

297 "Acosador de Piky Zubieta pagará 70 meses en prisión," Critica.com, October 2, 2020, https://www.critica.com.pa/show/acosador-de-piky-zubieta-pagara-70-meses-en-prision-589158.

298 Critica.com, Acosador de Piki Zubieta.

harm.[299] In 2022, Marze Amor, a social media influencer, shared her experience being pursued by a female stalker who sent harassing audio messages through eight accounts for more than two years. Amor raised her concerns to law enforcement, but they did not indict, citing that same-sex harassment is outside the scope of femicide laws.[300]

The GoP has taken steps to respond to gender-based violence. In 2013 and in 2020, the National Assembly passed Law no. 82[301] and Law No. 184 to adopt prevention measures against violence against women, to criminalize femicide, and to protect the interests of female politicians, respectively. Panama has both a *Ministerio de la Mujer* and a women's rights protection team that sit within the Ombudsman's office. The Ombudsman's office continues to give talks and trainings about cyber violence in primary, secondary, and tertiary educational settings.[302] In 2023, they reported training 1,200 people on women's rights, actions that women can take, and institutions that can support women who are victims of violence.[303] They plan to roll-out two new projects in 2024: monthly mini-workshops in private and public schools, and a project to educate political parties about how political violence occurs and what they can do about it.[304] The *Ministerio de la Mujer* chairs the *Comité Nacional contra la Violencia en las Mujeres* (CONVIMU), a body that promotes and monitors policies to prevent violence against women. CONVIMU includes representatives from: *Consejo Nacional de la Mujer* (CONAMU), *Órgano Judicial*, *Unidad de Acceso a la Justicia y Género*, *Ministerio Público*, *Instituto de Medicina Legal y Ciencias Forenses* (IMELCF), *El Ministerio de Gobierno*, *El Ministerio de Desarrollo Social*, *El Ministerio de Salud*, *El Ministerio de Educación*, *El Ministerio de Trabajo y Desarrollo Laboral*, *El Ministerio de Seguridad Pública*, *La Defensoría del Pueblo*, *La Universidad de Panamá*, *Instituto de la Mujer*, and the *Asociación de Municipios de Panamá* (AMUPA).[305]

More must be done to strengthen the protection of women, particularly those who face online harassment, including updating legal frameworks to support survivors' access to justice and promote accountability for perpetrators of criminal acts of tech-facilitated gender-based violence (TFGBV), in consultation with survivors. As highlighted in the Zubieta case, this can result in lengthy and cumbersome legal cases. A public official echoed these concerns, emphasizing that legislators should review the Penal Code and adapt it to today's needs.[306] The public official also noted that they have not collaborated with civil society outside of CONVIMU, indicating that linkages could be made to broaden the scope of their activities.[307] As elsewhere in the digital ecosystem, sex-disaggregated data on violence against women is scarce. The Ombudsman maintains a data observatory, (the *Observatorio Panameño contra la Violencia de Género*) but it only collects data on femicides from the Public Ministry.[308] However, interviewees emphasized that there will be new projects based on data management in 2024.[309]

299 Critica.com, Acosador de Piki Zubieta.

300 Gerard Govea, "Marze Amor revela lo que vivió por una acosadora en redes," Telemetro, January 21, 2022, https://www.telemetro.com/entretenimiento/marze-amor-revela-lo-que-vivio-una-acosadora-redes-n5648869.

301 Leyes Vigentes en Materia de Defensa de los Derecho de la Mujer," Ministerio de la Mujer, October 24, 2013, https://mujer.gob.pa/legislaciones/leyes/#1636557927181-becb1093-0969.

302 Public sector interviewee, interview by the DECA team, November 2023, online.

303 Public sector interviewee, interview by the DECA team, November 2023, online.

304 Public sector interviewee, interview by the DECA team, November 2023, online.

305 Public sector interviewee, interview by the DECA team, November 2023, online.

306 Public sector interviewee, interview by the DECA team, November 2023, online.

307 Public sector interviewee, interview by the DECA team, November 2023, online.

308 Public sector interviewee, interview by the DECA team, November 2023, online.

309 Public sector interviewee, interview by the DECA team, November 2023, online.

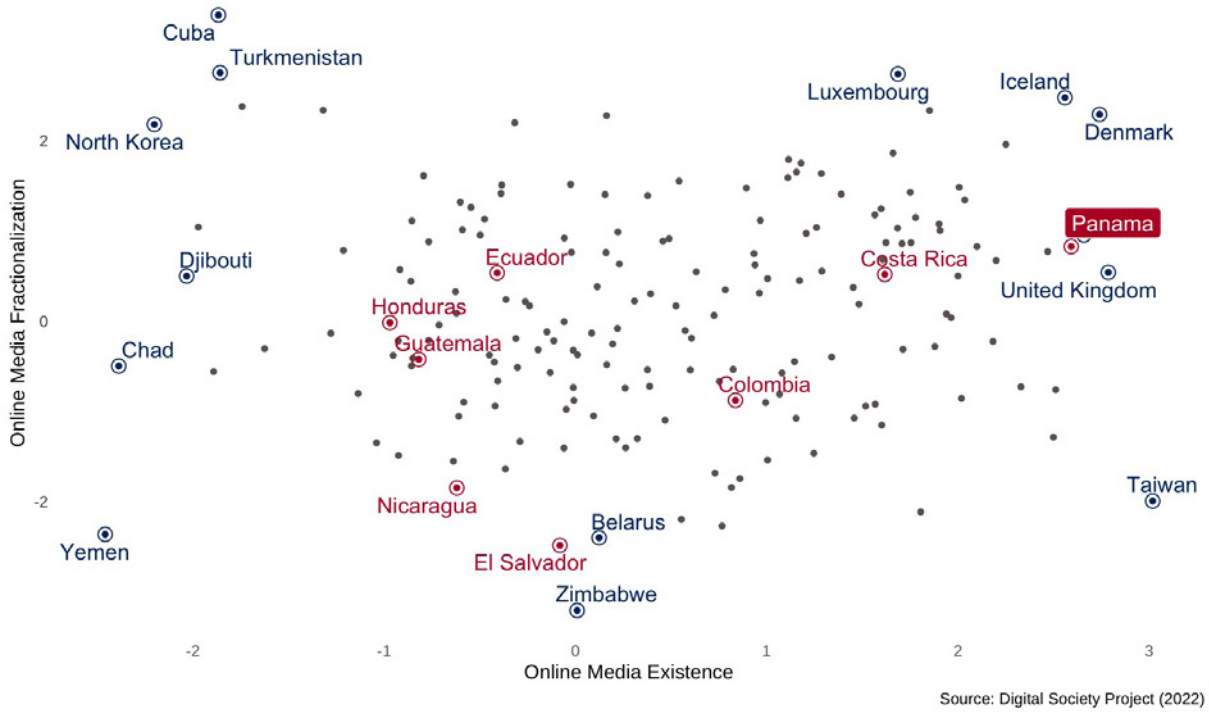
2.4 MEDIA AND CIVIL SOCIETY

Panama ranks higher than other countries in the region in press freedom indices. The country consumes diverse domestic media, and journalists are not targets of violence or exile as they have been elsewhere in Central America. However, Panamanian laws offer little protection to journalists. Defamation suits have become more commonplace, often resulting in onerous financial penalties, which can lead to self-censorship. CSOs are leveraging digital in new and innovative ways to encourage more democratic pluralism and transparency, but resource constraints limit the reach of their activities.

2.4.1 PANAMA'S PRESS FREEDOMS ARE UNDER PRESSURE FROM THE JUSTICE SYSTEM

The Panamanian media landscape is characterized by a large number of privately held media outlets offering a plurality of opinions. Figure 12 compares Panama's media landscape with that of its neighbors along two different indicators, using data from the Digital Society Project. "Online media existence" (horizontal) measures the extent to which people consume domestic online media. In this respect, Panama is ahead of its neighbors in Central America. "Online media fractionalization" (vertical) is more subtle. It assesses to what extent major domestic online media outlets give a similar presentation of major political news. In some countries, such as Zimbabwe and Taiwan, online media are highly politicized and offer opposing presentations of major events. Domestic media outlets in countries such as Cuba or Luxembourg tend to offer more consistent depictions (likely for very different reasons). Media outlets in Panama seem to give similar presentations of major events.

FIGURE 12: Online media existence and fractionalization



Source: Digital Society Project

Panama also ranks higher than many of its Central American neighbors in the World Press Freedom Index. Currently, Panama ranks 69 out of 180 countries, with a score of 69.67. As shown in Figure 13, Panama is ahead of most of its neighboring countries, with the exception of Costa Rica. According to Reporters Without

Borders, journalists in Panama are not subject to state sanctioned violence, as they have been in El Salvador and Honduras, nor have they been forced into exile, as has happened in Nicaragua and Guatemala. Panama's constitution safeguards freedom of expression without fear of censorship and protects the privacy of personal communications.[310,311]

FIGURE 13: Progress on the World Press Freedom Index



Source: Reporters Without Borders

A rise in libel cases have called into question how well press freedoms are protected in practice. Panama has not had a legal framework protecting journalists since 2005. That year, the National Assembly repealed Laws 67 and 68, known as the "gag laws."[312] As a result, Panamanian laws provide minimal protection for journalists. Interviewees believe that attacks on journalists typically stem from within the government, employing a systematic approach to undermine their credibility, especially when it comes to investigative reporting on

310 "2022 Country Reports on Human Rights Practices: Panama, "US Department of State, Burea of Democracy, Human Rights, and Labor, n.d., https://www.state.gov/reports/2022-country-reports-on-human-rights-practices/panama/.

311 "Constitución Política De La República De Panamá," Justia Panamá, n.d., https://panama.justia.com/federales/constitucion-politica-de-la-republica-de-panama/titulo-iii/.

312 "Dirección de Medios de Comunicación Social," Ministerio de Goberno, n.d., https://www.mingob.gob.pa/direccion-de-medios-de-comunicacion-social/.

sensitive topics.[313] Journalists critical of the public or financial sectors are especially subject to judicial harassment.[314] One anonymous interviewee noted that this reflects the weaponization of justice.

Staff of traditional and digital media outlets have been subject to dozens of lawsuits filed by prominent political figures. Former President Martinelli alone has filed 16 lawsuits against *La Prensa and Mi Diario*. In July 2020, former president Ernesto Pérez Balladares filed a defamation suit against *Corporación La Prensa*, the parent company of *La Prensa* and *Mi Diario*, for alleging that he could face future criminal charges for money laundering.[315] In 2018, former First Lady Marta Martinelli sued *La Prensa* journalists for a story about her alleging irregularities in her procurement of Christmas gifts while her husband was in office.[316] According to one media interviewee, FOCO, a digital media outlet, faces 36 pending lawsuits.[317] *FOCO* journalist Mauricio Valenzuela has also been targeted by the Martinelli family, who attempted to have his assets seized by court order.[318] In Panama, there is no legal limit on the amount of fines that journalists can be subjected to if found at fault. As a result, some journalists owe more than USD 10 million. Between Martinelli and Balladares, *Corporación La Prensa* faces more than USD 48 million in fines for damages, and the courts froze the newspaper's assets and accounts.[319] While Marta Martinelli sought more than USD 1 million in damages, the judges ultimately awarded her USD 3,000.

Access to information has also become a challenge. Journalists may need to hurdle not just data protection obstacles, but legislative momentum moving away from information transparency and technological bottlenecks. In April 2023, the GoP presented a proposal to amend Law No. 6, the country's transparency law, without consulting civil society.[320] Under pressure from the Inter American Press Association (SIP) and 57 other organizations, the GoP withdrew the project in September 2023.[321] While emphasis on digitalization of systems and processes should enhance access to public records, particularly those involving public funds and procedures, in practice it can be quite different.[322] One interviewee stated that it can be frustrating for journalists trying to locate essential information, as it often requires navigating through multiple systems.[323]

2.4.2 A VIBRANT CIVIL SOCIETY WITH POTENTIAL FOR GREATER IMPACT ON POLICIES

Civil society organizations in Panama pursue efforts to promote more civic engagement, accountability in public infrastructure, and public sector transparency. A few maintain digital platforms to pursue their goals. These organizations include the *Fundación para la Libertad Ciudadana*, which implements open government, electoral, and anti-corruption activities; *Espacio Cívico*, which works to improve citizen participation and engagement

313 Media interviewee, interview by the DECA team, July 2023, in person.

314 "Panama," Reporters Without Borders, 2023, https://rsf.org/en/country/panama.

315 "Panama court freezes La Prensa's assets amid defamation suit by former president," Committee to Protect Journalists, July 10, 2020, https://cpj.org/2020/07/panama-court-freezes-la-prensas-assets-amid-defamation-suit-by-former-president/.

316 "Ex-First Lady sues for $1 million – gets $3,000," Newsroom Panama, June 28, 2022, https://www.newsroompanama.com/news/ex-first-lady-sues-for-1-million-gets-3000.

317 Media interviewee, interview by the DECA team, July 2023, in person.

318 Lorenzo Abrego, "Respaldan a 'Foco' y Critican al sistema judicial que se presta para presionar a medios y periodistas," MIDIARIO.com, February 9, 2023, https://www.midiario.com/nacionales/respaldan-a-foco-y-critican-al-sistema-judicial-que-se-presta-para-presionar-a-medios-y-periodistas/.

319 "Panama: Report to the Midyear Meeting April, 19-22 2022, Inter-American Press Association, (IAPA), 2022, https://en.sipiapa.org/notas/1215112-panama.

320 "Panamá 79ª Asamblea General de la SIP, 9–12 de noviembre de 2023, Ciudad de México, México," IAPA, 2023, https://www.sipiapa.org/notas/1216197-panama.

321 IAPA, Panamá 79ª Asamblea General.

322 Media interviewee, interview by the DECA team, July 2023, in person.

323 Media interviewee, interview by the DECA team, July 2023, in person.

with the GoP; and the Infrastructure Transparency Initiative (CoST), which aims to improve fiscal management of infrastructure investment.

One of F*undación para la Libertad Ciudadana*'s programs with digital components includes *Voto Joven Informado*, a digital educational platform for youth to promote electoral participation. *Voto Joven Informado* offers four modules to teach individuals ages 18 to 30 about the democratic process, the role of journalists and freedom of expression, ethics in citizen leadership, and how to critically assess disinformation in the political process. The organization has also worked with the Organized Crime and Corruption Reporting Project (OCCRP) to prepare more accessible public databases.[324] The team collected corporate ownership, government expenditure, and other data to be scraped, collected, and reused through OOCRP's Aleph platform.[325] They have also held trainings for activists, researchers, and journalists on how to search for this information once the data is online.[326]

Espacio Cívico is another organization that works at the intersection of democratic pluralism and civic engagement. One of its emblematic programs, *Voto Informado*, is a digital tool that compiles the candidate's professional experience, academic training, political proposal, and voluntary declaration of interests and assets. In 2019, 50,000 people used the tool in the first six weeks before the elections.[327] However, fewer than 30 of the 480 congressional candidates voluntarily submitted their declaration of interests and assets.[328] Subsequently, Espacio Civico launched the *Boletín de Diputados,* which attempts to measure legislative and administrative management in real time across six indicators: attendance at plenary session, attendance at committees, payroll, travel, and travel expenses, and declaration of interests and assets. The tool publishes the legislative management and statements of donations received during the campaign. In the first two years, approximately 300,000 users visited the tool.[329] However, the tool can only be as good as the quality of the publicly accessible information it contains. Like *Voto Informado*, asset data and interests data are voluntary. While the declarations of interests required by law of the Deputies are reserved by ANTAI, only 10 Deputies have made them public in *Espacio Civico*.[330] Attendance data can be complex. The National Assembly publishes the data by seat, not by individual, and although it is official data, it is not precise enough to be certain whether a Representative simply marked the card as present, but left after a few minutes.[331]

In 2023, CoST, in partnership with the GoP, launched *Panamá en Obras*, a digital platform to provide transparent public procurement information to citizens. *Panamá en Obras* is now managed by the DGCP. The portal collects information on budget execution, payment percentages, and work progress of infrastructure projects. Data can be sectioned by province, sector, and sub-sector.[332] A civil society organization reported that there will soon be a module to allow ANTAI to receive complaints directly through the portal.[333] Currently, the platform houses 2,122 projects. However, a civil society organization indicated that one limitation is the lack of a unique

324 Civil society organization, interview by the DECA team, July 2023, online.
325 Civil society organization, interview by the DECA team, July 2023, online.
326 Civil society organization, interview by the DECA team, July 2023, online.
327 Civil society organization, interview by the DECA team, July 2023, in person.
328 Civil society organization, interview by the DECA team, July 2023, in person.
329 Civil society organization, interview by the DECA team, July 2023, in person.
330 Civil society organization, interview by the DECA team, July 2023, in person.
331 Civil society organization, interview by the DECA team, July 2023, in person.
332 Civil society organization, interview by the DECA team, July 2023, in person.
333 Civil society organization, interview by the DECA team, July 2023, in person.

project code that allows a user to follow the project from start to finish.[334] Infrastructure projects can have several stages, and if contracts are not unified, it is difficult to provide traceability.[335]

Few organizations in Panama focus specifically on digital. Those include *Fundación Vida Segura*, which focuses on cyber hygiene for minors, and IPANDETEC, a human rights online organization. *Fundación Vida Segura* launched an educational guide for parents, teachers, and school administrators to help protect children and adolescents when using the internet and to counteract cyber bullying.[336] The foundation plans to launch an updated guide to improve the skills of educators, parents, and guardians on the correct use of the internet for multiple purposes, such as entertainment, leisure, education, and communication, that young people use, to prevent risks caused by excessive use and lack of supervision and guidance.[337] IPANDETEC monitors how well human rights online are respected in Panama, monitors new legislative developments, advocates for better policies, and maintains digital platforms, like *Segur@s en línea*, which proactively look to improve the digital ecosystem for vulnerable populations, such as women.

Civil society organizations shared in interviews a few challenges, including human resource and financial constraints, and coordination bottlenecks, that have hindered their activities, noting that financial resources are scarce. One interviewee said that obtaining financial resources in Panama is complicated. There may not be a culture of donating as there is in other countries.[338] Another interviewee emphasized that budget constraints have hampered the Foundation in responding to the increase in incidents of cyber violence throughout the country.[339] Multi-stakeholder partnerships do not seem to be commonplace. Two civil society organizations noted few associations with public sector and educational organizations (linked with digital security), indicating that more connections may need to be established to support awareness-raising activities.[340,341] One organization said that it is difficult to maintain partnerships through political transitions.[342] Interviewees perceive that few technology professionals have started or joined these organizations, opting instead for more lucrative private sector careers.

PANAMA'S CYBERSECURITY OUTLOOK

Over the past two decades, Panama has made notable strides in its national cybersecurity capacity. In 2007, Panama was one of the first countries in the region to integrate cyber crime provisions into its Penal Code.[343] In 2011, it was one of the first countries to establish a national level CSIRT.[344] In 2013, the country adopted its first national cybersecurity strategy (NCSS). Today, AIG leads the implementation of the current NCSS, which was adopted in 2021, and manages two key cybersecurity bodies: the National Cybersecurity Directorate

334 Civil society organization, interview by the DECA team, July 2023, in person.

335 Civil society organization, interview by the DECA team, July 2023, in person.

336 Civil society organization, interview by the DECA team, July 2023, in person.

337 Civil society organization, interview by the DECA team, July 2023, in person.

338 Civil society organization, interview by the DECA team, July 2023, in person.

339 Civil society organization, interview by the DECA team, July 2023, in person.

340 Civil society organization, interview by the DECA team, July 2023, in person.

341 Civil society organization, interview by the DECA team, July 2023, in person.

342 Civil society organization, interview by the DECA team, July 2023, in person.

343 "Ley No. 14 (de 18 de mayo de 2007)," La Asamblea Nacional, https://www.gacetaoficial.gob.pa/pdfTemp/25796/4580.pdf.

344 "Decreto Ejecutivo No. 709 (de 26 de Septiembre de 2011)," Ministerio de la Presidencia, https://aig.gob.pa/descargas/2019/08/decreto-ejecutivo-creacion-del-csirt-panama.pdf?csrt=15267113344104337943.

(NCD) and CSIRT Panama. In 2014, Panama was the second country in the region, after the Dominican Republic, to join the Budapest Convention.[345]

In recent years, the country's progress has slowed. A 2020 joint IADB and OAS review of cybersecurity capacities in the region noted little to no progress between 2016 and 2020 across the five dimensions of the Cybersecurity Capacity Maturity Model for Nations (CMM), including policy, culture, education, legal and regulatory frameworks, and standards.[346] The ITU's 2020 Global Cybersecurity Index, which measures the commitment to cybersecurity of 182 countries, ranked Panama 103 out of 182 countries with a score of 34.11 out of 100.[347] Even with this low score, Panama is one of the better performing countries in Central America, ranked second, behind only Costa Rica (see Table 6).

TABLE 6: Panama's ranking in GCI 2020

COUNTRY	OVERALL SCORE	CA RANK	AMERICAS RANK	GLOBAL RANK
Costa Rica	67.45	1	8	76
Panama	34.11	2	14	103
El Salvador	13.3	3	25	148
Guatemala	13.13	4	26	150
Nicaragua	9	5	32	165
Honduras	2.2	6	35	178

Source: ITU GCI

Interviewees mentioned several challenges preventing Panama from moving beyond this formative stage of development. Resource constraints have hindered both the implementation of the NCSS and the expansion of key CSIRT Panama's activities. Unclear roles and responsibilities have complicated coordination between key actors. Steps have not been taken to integrate cybersecurity measures into policy and regulatory frameworks. Outdated cyber crime legislation and low cyber awareness among the general population pose significant challenges. These issues may be exacerbated by how quickly cyber issues are evolving, especially with the evolution of emerging technologies, such as Artificial Intelligence capabilities.

Limited scope and unclear governance, inadequate resources, and lack of formal reporting requirements inhibit the implementation of national cysbersecurity activities

Interviewees across sectors noted that the current national cybersecurity governance structure is unclear and requires adjustments to meet current national needs and priorities. One public sector interviewee pointed out that this structure is mandated to deal only with government agencies, and even the scope and resources

345 La Asamblea Nacional, "Ley No. 79 (de 22 de Octubre de 2013)," La Asamblea Nacional, https://ministeriopublico.gob.pa/wp-content/uploads/2021/02/Ley-79-de-22-de-octubre-de-2013.pdf.

346 "2020 Cybersecurity Report: Risks, Progress, and the Way Forward in Latin America and the Caribbean," IADB and OAS, 2020, 136. https://publications.iadb.org/en/2020-cybersecurity-report-risks-progress-and-the-way-forward-in-latin-america-and-the-caribbean.

347 "2020 Global Cybersecurity Index," ITU, accessed November 7, 2023, https://www.itu.int/epublications/publication/D-STR-GCI.01-2021-HTM-E.

to deal with public agencies must be expanded (e.g., ICT security compliance for government agencies).[348] The functions of the CSIRT Panama are unknown to the average Panamanian.[349]

Lack of clear roles and responsibilities may lead to the exclusion of non-governmental actors, who do not know how and to whom they should report cyber incidents or escalate specific situations to higher level authorities. This can also lead to inadequate coordination across sectors. As outlined below, incident reporting is not mandatory unless it is from a public institution, and reforms may be needed to ensure that the entire ecosystem reports cyber incidents directly to CSIRT Panama. According to one public sector interviewee, AIG is aware of national cybersecurity governance issues, but the current law must be amended to provide broader legal mandates to interact with all stakeholders of the ecosystem.[350] Following an amendment to the law, AIG plans to disseminate the new national cybersecurity governance structure to clarify specific functions, roles and responsibilities, and the escalation protocol.

Some GoP decision-makers said that an inadequate budget has hindered the government's ability to implement certain cybersecurity activities. According to cybersecurity interviewees, budget constraints have held back implementation of the country's ambitious NCSS.[351] One public sector interviewee noted that a lack of adequate funding affects the GoP's ability to monitor government agency compliance with the General Standards of ICT Management.[352] While CSIRT Panama has made significant progress over the past few years, staff and resource shortages continue to limit its scope. These include limited operating hours, limited service offerings, inability to meet its incident reporting obligations, and outdated technological equipment.[353] According to one interviewee, CSIRT Panama ideally needs an annual budget of USD 3 million to meet its obligations.[354,355] MEF has not yet released a forthcoming USD 60 million loan from the IADB to address these challenges has not yet been released to AIG. Interviewees did not know whether the forthcoming presidential elections in May 2024 may further slow its release.

Panama also has no national incident reporting framework. Public sector organizations are obliged to report by AIG's General Standards for ICT Management,[356] however, compliance is spotty and while AIG is working to put enforcement mechanisms in place, none were yet operational as of 2023. Private sector organizations are not subject to incident reporting provisions, even if they provide critical services, like energy, telecommunications, and health.

Some stakeholders are taking incremental steps to improve the incident reporting cycle. In 2021, the SBP and AIG/CSIRT Panama signed a cooperation memorandum of understanding (MOU) to exchange information on cyber incidents, security policies, and best practices to strengthen the cyber resilience and capacities of the financial sector. While CSIRT Panama is the only incident response team operating in the county, there have been some initiatives to establish a few sectoral CSIRTs. ABP has proposed a CSIRT for the financial sector with the forthcoming IADB loan—which is focused on digital development components and some cybersecurity

348 Public sector interviewee, interview by the DECA Team, July 2023, in person.

349 Cybersecurity expert, interview by the DECA Team, July 2023, in person.

350 Public sector interviewee, interview by the DECA Team, July 2023, in person.

351 Cybersecurity expert, interview by the DECA team, July 2023, in person.

352 Public sector interviewee, interview by the DECA team, July 2023, in person.

353 Cybersecurity expert, interview by the DECA team, July 2023, in person.

354 Cybersecurity expert, interview by the DECA team, July 2023, in person.

355 Interviewee did not share the current budget of CSIRT Panama.

356 "Normas Generales para la Gestión de las Tecnologías de la Información y Comunicación en el Estado," AIG, 2017, https://aig.gob.pa/descargas/2019/06/normas-generales-para-la-gestion-de-las-tic-en-el-estado-version-1.pdf?csrt=10694748989125951660.

activities—to provide scoping support. The University of Panama has proposed a CSIRT for the academic sector.[357] However, the parameters of each have yet to be defined. According to one cybersecurity expert, there is also some interest in establishing a government security operation center (SOC), which may start monitoring the ICT infrastructures of at least 10 public organizations.[358]

Critical information infrastructures are exposed to cyber threats

Panama has made slow progress protecting its national critical information infrastructure. Both the 2013 and 2021 NCSS recognized the importance and need to address this issue. However, 10 years on from the first NCSS, no GoP authority has yet identified or regulated critical sectors and assets. Panama does not have clear plans, protocols, or monitoring mechanisms to ensure the protection of the country's international airport, banking, insurance institutions, and port system. While Panama has not yet experienced a significant cyber attack, recent regional experience suggests that future cyber incidents could have devastating consequences. In 2022, cyber criminals attacked key agencies of the Government of Costa Rica, including the Ministry of Finance and Social Security Administration, causing more than USD 13 billion in damages.[359]

Cyber risk exposure increases when sectoral regulatory frameworks lack sufficient cybersecurity measures. In Panama, most institutions that deliver critical services are neither supervised nor monitored for cybersecurity compliance. Some sectors have taken their own incremental steps forward. As highlighted in Pillars 1 and 3, ASEP and SBP are working to modernize their respective regulatory frameworks, and the *Superintendencia de Seguros y Reaseguros de Panamá* (SSRP), the insurance market regulator, plans to integrate cybersecurity obligations in the next two years.[360]

Key sector institutions also have a poor track record of cybersecurity coordination. According to one cybersecurity expert, in 2019, there were some efforts to exchange information among critical infrastructure institutions, but operators were reluctant to share sensitive information.[361] Today, CSIRT Panama has established good communication channels with some service providers, such as the Panama Canal Authority, the Port Authority, and the Tocumen Airport. Despite these positive signs, one cybersecurity expert emphasized that mandatory incident reporting obligations must be integrated into a comprehensive regulatory framework to ensure adequate protection in the future.[362] While CSIRT Panama has a cyber crisis management plan, it has not been published and disseminated. National level cyber drills are not organized in a systematic manner and do not have the participation of all ecosystem stakeholders.[363]

Despite these limitations, the GoP has been working closely with domestic and international partners to enhance the country's cyber preparedness level. Panama hosted the 3rd Regional Simulation of Disaster Response and Humanitarian Assistance[364] between June 13–16, 2023. Participants from 15 countries joined Panama in simulating 19 scenarios through six categories of overlapping disasters, including a major earthquake,

357 "SBP y AIG firman Acuerdo de Cooperación Interinstitucional en el marco de ciberseguridad," SBP, March 19, 2021, https://www.superbancos.gob.pa/acuerdo-coop-sbp-aig.

358 Cybersecurity expert, interview by the DECA team, July 2023, in person.

359 Vinicio Chacón, "Ataques informáticos se dieron gracias a claves de accesos vendidas en la 'dark web,'" Semanario Universidad, July 29, 2022, https://semanariouniversidad.com/pais/ataques-informaticos-se-dieron-gracias-a-claves-de-accesos-vendidas-en-la-dark-web/.

360 Private sector interviewee, interview by the DECA team, July 2023, in-person.

361 Cybersecurity expert, interview by the DECA team, July 2023, in-person.

362 Cybersecurity expert, interview by the DECA team, July 2023, in-person.

363 Public sector interviewee, interview by the DECA team, July 2023, in-person.

364 Timothy "Seph" Allen, "Earthquakes, Landslides, Flooding, Cyber-Attacks, and Avian Flu Outbreaks were all on Deck for Emergency Drills Testing the Preparedness of Local Disaster Response Agencies and, for the First Time, Private Companies," NASA, July 19, 2023, https://appliedsciences.nasa.gov/our-impact/news/insights-gained-regional-disaster-drill-and-workshop-panama.

associated landslides, flooding, an avian flu outbreak, and cyber attacks. AIG and CSIRT Panama officials regularly participate in regional cyber drills, such as ITU regional cyber drills, and organize cyber exercises locally with the support of international partners, such as the USG and MITRE, a nonprofit research organization.

Outdated cyber crime legislation is not a priority

Between 2007 and 2014, Panama took positive steps to improve its cyber crime response. In 2007, the GoP integrated cyber crime provisions into the Penal Code, albeit with limited scope. In 2014, Panama joined the Budapest Convention, signaling the government's commitment to adopt a more internationally coordinated approach. Today, Panama's cyber crime legislation remains outdated and is unable to keep pace with a dynamic cyber crime landscape. Legislative provisions remain out of sync with accepted international standards and best practices (e.g., criminalization of illicit material) and lack agile and efficient international cooperation mechanisms to deal with complex and cross-border cyber crimes. An ill-equipped legislative body has held up efforts to make necessary changes.

Over the past few years, legislators have submitted two cyber crime bills for consideration by the National Assembly. One bill proposes a holistic amendment to the Penal Code and Criminal Procedural Code. The other bill, submitted by independent Legislator Juan Diego Vasquez and Legislator Kayra Harding Bart in February 2023, focuses on amending the cyber crime provision only. Both are held up in various stages of the legislative process. The first, while reviewed by a legislative sub-commission, has yet to be debated in a plenary session of the National Assembly. The other is stuck in its first debate.[365]

Lack of resources restrains law enforcement, prosecutors, and judges from responding to complex, cross-border cyber crime

The National Police and Public Ministry house specialized units to investigate cyber crimes. These include the *Unidad de Investigacion de Delitos Informaticos* (UIDI) and the *Fiscalia Superior Especializada en Delitos contra la Propiedad Intelectual y Seguridad Informatica* (FSEDPIS). While the UIDI and FSEDPIS coordinate with CSIRT Panama, both units struggle with limited technological and human resources. Few staff of the UIDI have industry certifications in handling digital evidence analysis. In addition, the UIDI must use digital forensic facilities provided by the *Instituto de Medicina Legal y Ciencias Forenses* (IMELCF). IMELCF has expanded operational capacity and improved response times over the past few years, including by establishing new digital forensic facilities in other regions of the country,[366] but IMELCF is ill-equipped to analyze all digital evidence for the entire country.

FSEDPIS also deals with several challenges related to the limited scope of cyber crime legislation. Certain offenses, such as cyber bullying and illicit material, are not expressly criminalized in Panama. As a result, FSEDPIS cannot prosecute these activities. According to one former prosecutor, this may re-victimize affected persons who are unable to seek legal remedy.[367] FSEDPIS also struggles to obtain information from big tech companies, like Google, Microsoft, and Facebook. Panama does not have any specific cooperation arrangement with these tech companies, and must work through US Government institutions, like the Federal Bureau of Investigation and the US State Department, to expedite the process of obtaining information.

Panama's justice system lacks specialized courts for cyber crime. Few judges adequately understand how cyber crime operates, the tools of evasion (such as VPN and TOR networks), or how digital evidence is properly

365 Legislator, interview by the DECA team, July 2023, in person.

366 "Imelcf inaugura unidad de informatica forense en panama oeste," Instituto de Medicina Legal y Ciencias Forenses, (IMELCF) March 15, 2022, https://www.imelcf.gob.pa/2022/03/15/imelcf-inaugura-unidad-de-informatica-forense-en-panama-oeste-2/.

367 Former public sector official, interview by the DECA team, July 2023, in person.

collected and analyzed. In some cases, judges feel unprepared to pursue conviction and are reluctant to reproduce electronic evidence in trials.[368] As a result, case law on cyber crime is scarce. Some domestic and international partners, such as the UNODC[369], have implemented trainings for public servants, but these are often too short—two or three full days—or not advanced enough to ensure that officials can handle more complex crimes.

Cyber hygiene capacity of the general population and public sector remains low

Interviewees across academia, civil society, and the public and private sectors agreed that the general cyberculture and awareness level of the average Panamanian remains nascent.[370] The 2020 joint IADB OAS cybersecurity assessment[371] rated the cybersecurity mindset of the user two out of five and the user understanding of personal information and protection online two out of five, with larger numbers indicating higher proficiency. Panama is roughly in line with its Central American neighbors (see Table 7).

TABLE 7: Cyber culture and society in Panama

COUNTRY	USERS CYBERSECURITY MINDSET (OUT OF 5)	USERS UNDERSTANDING OF PERSONAL INFORMATION PROTECTION ONLINE (OUT OF 5)
Costa Rica	2	3
Panama	2	2
El Salvador	2	2
Guatemala	2	2

Source: IADB 2020

Private, public, and civil society institutions are aware that general awareness-raising campaigns are needed to improve public capacity. In 2019, CSIRT Panama implemented a three-year national cyber awareness program which included the following campaigns: the "*¿sabia que*?" campaign, the "*no te confies*" campaign, and the "*teletrabajo seguro*" campaign (see Box 9). In mid-2023, the GoP, with the support of Fortinet, launched *Panama Cibersegur*a, which aims to teach Panamanians how to take better care of their digital identity.[372]

Civil society organizations are also involved in capacity-building. *Fundacion Comunidad DOJO* (FCD) organizes four main events annually, (1) Bsides, an annual conference held every January that explores topics in ethical hacking and digital security;[373] (2) DOJOConf, held annually in July, that brings together regional ambassadors from the organization's network;[374] (3) an annual conference held in September that focuses on cloud security;

368 Former public sector official, interview by the DECA team, July 2023, in person.

369 "Entrenamiento en cibercrimen para funcionarios judiciales de Panamá," UNODC, May 13, 2020, https://web.archive.org/web/20220806190429/https://www.unodc.org/ropan/es/entrenamiento-en-cibercrimen-para-funcionarios-judiciales-de-panam.html.

370 Cybersecurity expert and university professor, interview by the DECA team, July 2023, in person.; Private sector interviewee, interview by the DECA team, July 2023, in person; Private sector interviewee, interview by the DECA team, July 2023, in person.; Private sector interviewee, interview by the DECA team, July 2023, in person.

371 IADB and OAS, 2020 Cybersecurity Report: Risks, Progress, and the Way Forward in Latin America and the Caribbean (Washington, DC: IADB, 2020), 136. https://publications.iadb.org/en/2020-cybersecurity-report-risks-progress-and-the-way-forward-in-latin-america-and-the-caribbean.

372 "Panama Cibersegura," GOB, n.d., https://panamacibersegura.gob.pa/.

373 "Agenda," BSIDES, n.d., https://bsidespa.org/agenda-2023/.

374 "Ponentes 2023," DOJOCONF, accessed Nov 09, 2023, https://dojoconfpa.org/ponentes-2023/.

and (4) a conference focused on machine learning.[375] FCD finances these activities from donations from domestic and international companies, and is a recipient of grants from organizations like SENACYT.

Coordination between these different initiatives seems to be poor. While FCD works closely with stakeholders like SENACYT and *Ciudad del Saber*, they have not engaged actively with AIG or the *Ministerio de Educación*. FCD recognizes the importance of cooperating with different actors, especially government agencies, to maximize resources. A private sector interviewee said that while several organizations implement awareness-raising activities, they work in silos, and no coordinated actions have taken place to combine resources and materials to reach demographic diversity.[376] One cybersecurity expert agreed that since more awareness-raising activities are required, more resources and better coordination mechanisms are needed to improve Panama's cyber culture.[377]

BOX 9: Awareness-raising campaigns disseminated through social media and websites by AIG/ Panama CSIRT

CAMPAIGN NAME	TARGETED DEMOGRAPHICS
"¿sabia que?" campaign	An awareness campaign aimed at various tips related to cybersecurity, especially the definition of cybernetic concepts and capsules of interest. This campaign covers various topics in technical functions related to important topics in computer security and information security. All the content and material are for public use and target the general public.
"no te confies" campaign	An awareness campaign on issues related to cybersecurity, with the aim of reaching more people in society. Although it is a broad campaign on cyber issues, much of its content is also focused on the risks which children are exposed to on the internet. All the content and material are for public use, but target parents, teachers and children.
teletrabajo seguro campaign	Law No. 76 regulates teleworking in Panama, which establishes that the worker will have all the rights and obligations inherent to the worker established in the Labor Code. In the midst of the pandemic, this type of work was used by many companies. Once this teleworking modality is established, the worker and the company must be aware of the risks involved in this new work alternative. For this reason, the CSIRT Panama started the "Safe Teleworking" campaign, sharing tips and suggestions in relation to computer and information security. All the content and material are for public use, but target the group of people that work remotely or do home office tasks.

The cyber hygiene capacity of the GoP is low. The IADB-OAS assessment rated the cybersecurity mindset of the government as two out of five. Interviewees shared similar views. A cybersecurity expert and university professor agreed that the cyberculture and awareness levels remain low. Cybersecurity interviewees recognized that while the cyber hygiene of the public sector had improved in recent years, more could be done.[378] Cyber hygiene training should demonstrate the importance of enabling multi-factor authentication, which currently is neither a robust practice nor is it implemented across all public agencies.

Public sector actors are working closely with industry partners to deliver cybersecurity training and awareness-raising campaigns to enhance capacity. In 2022, the AIG and Fortinet signed a cooperation MOU to support

375 Civil society organization, interview by the DECA team, July 2023, in person.

376 Private sector interviewee, interview by the DECA team, July 2023, in person.

377 Cybersecurity expert, interview by the DECA team, July 2023, in person.

378 Cybersecurity expert, interview by the DECA team, July 2023, in person.; Private sector interviewee, interview by the DECA team, July 2023, in person.

Panama's digital transformation.[379] Key activities include delivering 30 online technical cybersecurity courses for public servants, such as a network security expert certification.[380] In 2022, AIG and the US Government delivered a workshop to prosecutors and other public servants on implementing the national cybersecurity strategy.[381] CSIRT Panama has also provided cybersecurity training to public servants.[382]

Adoption of these activities is a work in progress. The SSRP was part of the pilot training program for the AIG-Fortinent supported technical cybersecurity courses. While only 75 staff members registered for this training, the enrollment rate at other government institutions was much lower, around 2 percent. According to one interviewee, enrollment at SSRP had been more successful because the institution had a champion who promoted the campaign internally to ensure a higher participation rate.[383] These courses have not been made mandatory in other public institutions.

379 "La Autoridad Nacional para la Innovación Gubernamental de Panamá y Fortinet firman acuerdo de colaboración en materia de ciberseguridad," Fortinent, February 24, 2022, https://www.fortinet.com/lat/corporate/about-us/newsroom/press-releases/2022/fortinet-y-gobierno-panama-firman-acuerdo-colaboracion-materia-ciberseguridad.

380 Fortinent, La Autoridad Nacional.

381 "Funcionarios se capacitan para prevenir incidentes cibernéticos," AIG, September 15, 2022, https://aig.gob.pa/funcionarios-se-capacitan-para-prevenir-incidentes-ciberneticos/.

382 "AIG capacita a servidores públicos en Seguridad de la Información," CSIRT Panama, May 13, 2016, https://cert.pa/?p=766.

383 Private sector interviewee, interview by the DECA team, July 2023, in person.

PILLAR 3: DIGITAL ECONOMY

Digital Economy explores the role digital technology plays in increasing economic opportunity and efficiency, trade and competitiveness, and global economic integration. Areas of inquiry include digital financial services (credit or debit cards, payment apps, mobile money, and digital savings and loan products), financial inclusion, regulation of digital finance, digital trade, e-commerce, and the financial technology (FinTech) enabling environment. This pillar also assesses strengths and weaknesses in the local digital talent pool and the tech startup environment. A healthy digital economy requires a supply of ICT skills that match the demand and an ecosystem that promotes technological innovation.

KEY TAKEAWAYS

DIGITAL SOCIETY, RIGHTS, AND GOVERNANCE

- Access to and use of digital financial services (DFS) has grown steadily since the COVID-19 pandemic, but challenges remain for marginalized segments of the population.
- The regulatory framework governing the financial and e-commerce sectors has not kept pace with technological change.
- The business environment does not adequately enable the growth and scaling of tech startups.
- The digital talent pool does not currently meet the labor demand.

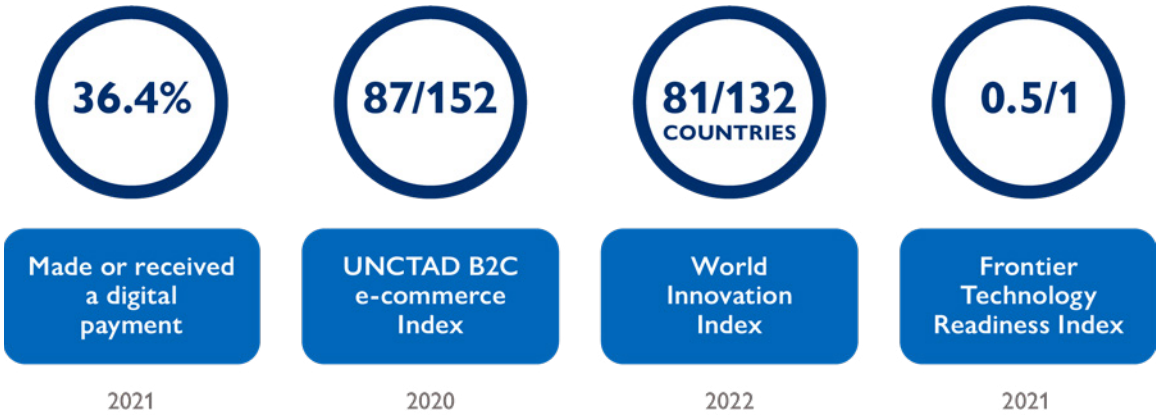
RELEVANT RECOMMENDATIONS

8. Strengthen the regulatory and strategic frameworks for the digital economy
9. Support upskilling initiatives to strengthen the talent pool
10. Facilitate synergies between Panama and its neighbors to improve cross-border digital trade
11. Promote a human-centered and inclusive approach to developing the DFS market
12. Guide startups through the maturation process to help them expand into the global market

INTRODUCTION

Stakeholders across Panama's digital economy have characterized the country as a logistical, financial, and, in recent years, a digital hub that welcomes a diversity of multinationals and entrepreneurs. Interviewees across the public and private sectors agree that technologies are essential for Panama's economic growth. However, Panama has a long way to go to consolidate itself as a digital hub that offers opportunities to develop ventures in emerging technologies. The country must also advance rapidly in key factors of the digital economy such as the promotion of electronic commerce, innovation, and the development of digital financial services (see Figure 14). In addition, the lack of a clear development strategy for the digital economy may limit the country from taking full advantage of digital financial services, fintech business development, and the entrepreneurial spirit of Panamanians.

FIGURE 14: Panama's digital economy at a glance



Sources: UNCTADStat; WIPO; The World Bank Global Findex

3.1 AN OVERVIEW OF THE DIGITAL ECONOMY IN PANAMA

Panama is known for high economic growth relative to its neighbors. Between 2014 and 2019, its economy grew on average approximately 4 percent. By contrast, other Central American countries grew at a rate of 2.9 percent.[384] While COVID-19 pandemic-related shutdown measures precipitated an economic contraction in Panama, its economy eventually rebounded. By 2021, Panama returned to positive growth of 15.3 percent[385] while the other Central American countries grew at a rate of 9.7 percent.[386] Panama's economic growth is largely fueled by its services sector, which comprised 82 percent of the country's GDP in 2017. Transportation, personal travel, and financial services are the key service export items in Panama, representing approximately 50 percent, 30 percent, and 7 percent, respectively, of Panama's total USD 13.9 billion in services exports in 2019. By contrast, computer and information services made up a much smaller share, approximately 2 percent.

The number of companies working in Panama's technology sector has grown more slowly than in other parts of its economy. According to one startup incubator, there are fewer technology businesses as compared to commerce, hospitality, and agriculture.[387] In 2020, there were 549 companies registered in the ICT sector of Panama, of which the majority provide services such as computer programming and software development.[388] According to data from Dun & Bradstreet, Panama ranks 12 out of 15 countries in terms of the number of registered computer system design companies, behind its contiguous neighbors Costa Rica and Colombia. Low digital skills, business inexperience with digitalization, small market size, and underdeveloped domestic logistics continue to constrain the sector.

384 "Balance preliminar de las economías de Centroamérica y la República Dominicana (CARD) en 2020," CEPAL, February 2021, https://repositorio.cepal.org/items/3d7177a7-ff51-4415-83f5-794d5125a3af.

385 "El Banco Mundial en Panamá," World Bank, accessed October 2023, https://www.bancomundial.org/es/country/panama/overview.

386 Estudio económico de Centroamérica y la República Dominicana en 2022 y perspectivas para 2023," CEPAL, October 2022, https://repositorio.cepal.org/items/2f4f8597-0c09-4070-baf4-3b2d4ef9d2eb.

387 Private sector interviewee, interview by DECA team, July 2023, in person.

388 Silvia Segura González, "Panamá: Mercado Potencial para El Sector TI," (PROCOMER, March 2020, http://sistemas.procomer.go.cr/DocsSEM/7CE952ED-C8B6-4DE1-AC09-91CEC88035DB.pdf.

The country's private and public sectors have worked to build a better enabling environment for the digital economy. Institutions such as the CAPATEC, *Autoridad de la Micro, Pequeña y Mediana Empresa* (AMPYME), and the *Ministerio De Comercio E Industrias* (MICI) promote more innovative electronic commerce and the automation of business processes.[389] Other companies, like Innovation Smart District, advocate for a future where Panama can be the seedbed for emerging technologies, such as blockchain, cryptocurrencies, and tokenization.[390]

The GoP has also led initiatives which aim to offer an attractive legal framework to start businesses, the provision of G2B digital public services (see Section 2.1), and the development of an infrastructure that attracts foreign technological investment. Panama was the first country in Central America to issue a specific law on electronic commerce that has allowed the regulation of digital platforms. Interviewees said reforms are needed, including electronic signature and data storage.[391] Other progressive legal provisions include regulation on teleworking, the protection of personal data, and the establishment of multinational companies and regional headquarters of multinational companies, which demand more digital services and sophisticated ecosystems (see Table 8). Actors like CAPATEC and the Center for National Competitiveness agree that better coordination and collaboration between actors is necessary to move forward.[392,393]

TABLE 8: Key public policies and laws that aim to promote Panama's Digital Economy

E-Commerce Law	This law defines and regulates electronic documents, electronic signatures, and the provision of technological document storage services, and adopts other provisions for the development of electronic commerce.
Entrepreneurship Companies Law	This law facilitates the formalization of companies through a simplified registration system and provides tax incentives.
Law on the Seat of a Multinational Company (SEM)	This law allows the headquarters of multinational companies to benefit from a series of tax, immigration, and labor advantages. It is established as a tax regime.
Telework Law	This law regulates the employment relationship of personnel who perform their duties outside the employer's offices, whether from their own home or in a place other than the employer's facilities.
Law on Electronic or Digital Means for Carrying out Government Procedures Online	This law strengthens the system that encourages the use of electronic means in government procedures and establishes PanamaDigita.gob.pa as the single portal for e-services.

3.1.1 PANAMA'S QUEST TO BECOME A DIGITAL HUB

The GoP has high ambitions for the country to become a regional leader in the digital economy. The *Panamá Hub Digital Strategy*—hereafter referred to as *Panama Digital Hub*—provides a useful reference point to reflect on the progress toward this vision.[394] Adopted in 2018, *Panama Digital Hub* effectively revives and updates the *National ICT Strategy 2008–2018* by laying out the GoP's roadmap through 2026 for strengthening its national innovative capacity.[395] *Panama Digital Hub* aims to promote innovation in and strengthen the export capacity

389 "Visa y Ampyme se unen para promover la digitalización de las Mipymes panameñas," AMPYME, March 15, 2022, https://ampyme.gob.pa/?p=31823.

390 Private sector organization, interview by the DECA team, July 2023, in person.

391 Research institute, interview by the DECA team, July 2023, in person.

392 Private sector interviewee, interview by the DECA team, July 2023, in person.

393 Research institute, interview by the DECA team, July 2023, in person.

394 "Decreto Ejecutivo No. 455 (de 20 de Junio de 2018)," El Ministerio de la Presidencia, https://www.gacetaoficial.gob.pa/pdfTemp/28555_B/ae/6971.pdf.

395 By the GoP's account, the National ICT Strategy 2008–2018 was abandoned due to shifting priorities.

of the ICT sector, which the GoP views as one of the cornerstones of a successful digital economy. The strategy calls for a multi-sector approach for undertaking key activities that fall under four pillars: social and physical "infrastructure," human talent, legal framework, and financial resources (see Table 9).

TABLE 9: Panama Digital Hub Strategy Pillars and Key Activities, by 2026

PILLARS	KEY ACTIVITIES
Social and physical infrastructure	• Establish an ICT cluster that functions as a working group to oversee the implementation of the strategy. The ICT cluster should comprise the Chamber of Innovation and Information and Communications Technologies of Panama (CAPATEC), the National Secretariat of Science and Technology (SENACYT), and AIG as permanent members and should be represented by the private and public sectors, as well as by academia. • Establish a monitoring group that tracks the ICT cluster's progress. • Create the National Institute for Advanced Scientific Research in ICT (INDICATIC), which is to function as a public interest association (AIP). • Strengthen university ICT departments and programs. • Leverage the Vice Ministry of Foreign Trade (VICOMEX) to attract foreign direct investments in advanced technologies. • Offer incentives for large companies to source and procure ICT goods and services locally. • Host awards to celebrate and recognize innovation in ICT solutions developed through collaborations between universities and enterprises. A separate award should be hosted to celebrate and recognize innovations that use technology to solve social issues.
Human talent	• Launch a technical training network that leverages the resources of universities, the National Institute of Vocational Training and Training for Human Development (INADEH), the Ministry of Education (MEDUCA), and private companies. The network is to design training "curricula" that aim to help close the ICT talent gap. • Launch graduate and postgraduate scholarship programs to be managed by the Institute for Training and Development of Human Resources (IFARHU).
Legal framework	• Promulgate a law that consolidates AIPs to promote transparency, independence, government support, and accountability and another law that creates a national innovation lab. • Ease immigration rules to attract foreign digital talent. • Develop tax incentives to promote innovation. • Support the development of digital mechanisms such as e-invoicing, digital identity, and e-signature to accelerate the growth of e-commerce and promote regulations that empower government entities, including MICI, the Public Registry, AIG, SENACYT, and MEF to accelerate the adoption of these digital mechanisms.
Financial resources	• Raise public and private funds to support the ICT cluster in executing the strategy. • Create an ICT sector fund dedicated to financing research and development. A share of the Universal Access Fund will be channeled toward financing this fund, along with fundraising efforts by SENACYT, AIG, and international organizations. • Raise funds from venture capital firms and angel investors to finance ICT projects. • Creating linkages between universities and business incubators to support startup financing. • Direct public funds to invest in national innovation labs.

Source: Panama Digital Hub Strategy

Five years on, progress has been made toward implementing *Panama Digital Hub*. For instance, with the support of the Latin American Advanced Networks Cooperation (RedCLARA), SENACYT will create the Training

Commission of the National Research and Education Network to develop digital talent in the country.[396] CAF recently approved a USD 350 million loan to strengthen the digital transformation of the government and the private sector.[397] In 2022, the European Union's Copernicus Center and the AIG entered into a partnership to provide geospatial data to the public and private sectors to inform public policy, combat deforestation, and strengthen early warning systems for natural disasters.[398] In May 2023, AIG and the European Space Agency signed a Copernicus technical operating arrangement.[399] In December 2023, a Panamanian delegation visited the Copernicus Regional Center in Chile to exchange knowledge and best practices.[400]

Despite these positive developments, *Panama Digital Hub* still represents more of an aspirational slogan than a lived reality. Implementation of key activities has been spotty. One objective of the strategy is to develop curricula and facilitate public investment in innovation labs to close the digital talent gap by 2026. However, no public record points to a public sector policy of incentives for the training of science, technology, engineering, and math (STEM) students, suggesting that this activity may still be on hold. Second, while the strategy has buy-in from public and private actors alike, roles and responsibilities for its implementation have not been clearly defined and delineated. And evidence of improvement in Panama's national innovative capacity since the launch of *Panama Digital Hub* remains inconclusive at best. Between 2018 and 2023, Panama has consistently remained in the middle of the pack regionally on the Global Innovation Index.[401] Panama's share of ICT services exports relative to its total service exports has stayed stagnant during roughly the same time period while many other countries in the region have managed to grow their share by several percentage points.[402,403]

3.2 DIGITAL FINANCIAL SERVICES

The DFS market in Panama is dominated by the banking sector, as the FinTech sector has yet to mature. In line with global trends, the COVID-19 pandemic accelerated the banking sector's digital transformation journey, which began prior to 2020. According to the SBP, the number of electronic banking transactions,

396 "Panamá firma convenio para potenciar la transformación digital en el país," Agencia de Noticias Panamá, July 9, 2023, https://www.anpanama.com/Panama-firma-convenio-para-potenciar-la-transformacion-digital-en-el-pais-14721.note.aspx.

397 "Aprobación de USD 350 millones para la Estrategia de Transformación e Inclusión Digital en Panamá," CAF, March 2, 2021, https://www.caf.com/es/actualidad/noticias/2021/03/caf-aprueba-usd-350-millones-para-apoyar-la-estrategia-de-transformacion-e-inclusion-digital-en-panama/.

398 Centro Copernicus de la UE en Panamá, ampliará datos de imágenes satelitales en la región," AIG, December 12, 2022, https://aig.gob.pa/centro-copernicus-de-la-ue-en-panama-ampliara-datos-de-imagenes-satelitales-en-la-region/.

399 "Centro Copernicus de la UE en Panamá, ampliará datos de imágenes satelitales en la región," AIG, December 12, 2022, https://sentinels.copernicus.eu/web/sentinel/missions/international-cooperation/partners.

400 Luiz Alberto Rasseli Junior, "Delegation from the Copernicus Regional Center in Panama visits REUNA," RedCLARA, December 28, 2023, https://www.redclara.net/index.php/en/noticiasyeventos/noticias/8471-delegation-from-the-copernicus-regional-center-in-panama-visits-reuna.

401 Global Innovation Index 2019, World Intellectual Property Organization, (WIPO), 2019, https://www.wipo.int/edocs/pubdocs/en/wipo_pub_gii_2019.pdf.
Global Innovation Index 2018, World Intellectual Property Organization. (WIPO), 2018, https://www.wipo.int/edocs/pubdocs/en/wipo_pub_gii_2018.pdf.
Global Innovation Index 2020, World Intellectual Property Organization. (WIPO), 2020, https://www.wipo.int/edocs/pubdocs/en/wipo_pub_gii_2020.pdf.
Global Innovation Index 2021, World Intellectual Property Organization. (WIPO), 2021, https://www.wipo.int/edocs/pubdocs/en/wipo_pub_gii_2021.pdf.
Global Innovation Index 2022, World Intellectual Property Organization. (WIPO), 2022, https://www.wipo.int/edocs/pubdocs/en/wipo-pub-2000-2022-en-main-report-global-innovation-index-2022-15th-edition.pdf.
Global Innovation Index 2023, World Intellectual Property Organization. (WIPO), 2023, https://www.wipo.int/publications/en/details.jsp?id=4680#:~:text=The%20GII%202023%20reveals%20who,100%20science%20and%20technology%20clusters.

402 "International Trade Centre Trade Map," International Trade Centre, 2022, https://www.trademap.org/Country_SelServiceCountry_TS.aspx?nvpm=1%7c591%7c%7c%7c%7c%7c%7cS00%7c1%7c3%7c1%7c2%7c2%7c1%7c2%7c1%7c1%7c1.

403 To illustrate, Panama's share of ICT services export was 3.53 percent and 3.09 percent of total services export in 2018 and 2023, respectively. By comparison, that of Costa Rica was 11.79 percent and 15.93 percent in 2018 and 2023, respectively.

including those conducted via internet banking, mobile banking, ATMs, and point-of-sale payments, increased by 62 percent between 2019 and 2022.[404] However, while the uptake of DFS is increasing across the country, certain population segments, including women, individuals living in rural areas, migrants, and asylum seekers remain underserved.

TABLE 10: Key stakeholders in the DFS market of Panama

	STAKEHOLDER	DESCRIPTION
Regulators	SBP	The SBP regulates and supervises the banking system of Panama. It also supervises other entities that manage e-payments so that they are in compliance with international standards for anti-money laundering, counter-terrorist financing, and countering the financing of the proliferation of weapons of mass destruction (AML/CFT/CPF). The SBP analyzes new regulation and supervision models for FinTech entities in their different modalities (electronic payments, credit, insurance, among others).[405]
	MEF	In 2019, MEF presented the Financial Inclusion Strategy with the objective of modernizing the financial inclusion measurement system. A year earlier, the MEF promoted the Draft Law on Modernization and International Competitiveness of the Financial System of Panama.
	Superintendencia del Mercado de Valores de Panamá (SMV)	The SMV regulates and supervises issuers, investment companies, intermediaries, and other securities market participants. SMV also provides information regarding crypto currencies and the use of e-wallets in Panama.[406]
	SSRP	The SSRP regulates companies or entities whose purpose is to carry out insurance and reinsurance. Since 2018, it has worked with the SBP and the SMV to review the regulations necessary for the development of InsurTech business models.[407]
	La Superintendencia de Sujetos no Financieros (SSNF)	SSNF supervises non-financial institutions to ensure that they are in compliance with international standards for AML/CFT/CPF. It also regulates DFS services provided by InsurTech, online casinos, or companies in the special economic zones of Colon, Panama Pacifico, and Baru.
	Instituto Panameño Autónomo Cooperativo (IPACOOP)	IPACOOP is responsible for the regulation of cooperatives in Panama. It collaborates with the SBP in the dissemination of financial education throughout the country.

404 "Panamá | Banca digital reporta 1,598 millones de transacciones," DPL News, March 13, 2023, https://dplnews.com/panama-banca-digital-reporta-1598-millones-de-transacciones/.

405 "Fintechs de Pago y Propuesta de Anteproyecto del SNP: XX Jornada de Actualizacion Bancaria 2022," Superintendencia de Bancos de Panamá, November 2022, https://www.superbancos.gob.pa/documentos/presentaciones/XX-Jornada-Actualizacion-Bancaria-2022/Fintechs_de_Pago.pdf.

406 "Regulacion Fintech en Latinoamerica," Lloreda Camacho, 2023, https://lloredacamacho.com/wp-content/uploads/2023/02/LATAMFINTECHREGULATION-ES-140223.pdf.

407 "Insurtech y fintech impactan vida de los panameños," ElCapital Financiero.com, March 20, 2018, https://elcapitalfinanciero.com/insurtech-y-fintech-impactan-vida-de-los-panamenos/.

TABLE 12 (CONTINUED): Key stakeholders in the DFS market of Panama

	STAKEHOLDER	DESCRIPTION
Financial Service Providers	Banks	Panama's banking sector has five of the 10 largest banks in Central America.[408] In 2022, it reported USD 140 billion in assets and USD 1.9 billion in profits.[409] There are 39 commercial banks with a general license, 13 banks with an international license, and 10 banks with a representation license.[410] Panama has two state-owned banks: the BNP (see immediately below) and the *Caja de Ahorros*. The Banking Association of Panama (ABP) is a public entity that represents the interests of all banks in Panama. ABP members discuss issues such as cybersecurity (see Section 2.4.2) and inform the design and development of rules and regulations that affect the financial sector.[411]
	Banco Nacional de Panamá (BNP)	The BNP oversees the national payment system as Panama does not have a central bank. It also offers banking services to the public, such as the National Electronic Wallet (BEN)[412] for electronic payments and transactions.
	Microfinance institutions (MFIs)	There are eight MFIs operating in Panama. They are represented by the Panamanian Microfinance Network (REDPAMIF). Microserfin, ProCAJA and SUMA Financieras are among the most relevant in the use of technologies for the provision of financial services.
	Cooperatives	There are 173 cooperatives registered in IPACOOP, 54 of which are headquartered outside of Panama City.
	FinTech companies	In 2021, approximately 16 FinTech companies operated in Panama.[413]

3.2.1 AN OVERVIEW OF THE NATIONAL PAYMENT SYSTEM

The BNP serves as the administrator of Panama's payment systems, since Panama does not have a central bank. All commercial banks have access to the Automated Clearing House (ACH) and the real-time gross settlement (RTGS) system for a fee. In 2019, the BNP launched the RTGS system to facilitate instantaneous transfers of large-value funds between banks.[414] Another advantage of RTGS systems is that they allow a shorter window of time for critical information to be vulnerable, thereby mitigating risks of fraud and data theft. Beginning in 2020, the BNP announced plans to allow clients of participating banks to use the RTGS system.[415] One private

408 "EL TOP 10 DE LOS MAYORES BANCOS DE CENTROAMÉRICA," CentroaméricaEconomia, June 29, 2017, https://centroamericaeconomia.com/2017/06/29/el-top-10-de-los-mayores-bancos-de-centroamerica/.

409 Alma Solís, "Bancos en Panamá cerraron 2022 con activos por US$140 mil millones, cartera de US$83 mil millones y utilidad de US$1,900 millones," SNIP Noticias Panamá, March 10, 2023, https://noticiasdepanama.com/destacado/bancos-en-panama-cerraron-2022-con-activos-por-us140-mil-millones-cartera-de-us83-mil-millones-y-utilidad-de-us1900-millones/.

410 "Información General de Bancos," Superintendencia de Bancos de Panamá, accessed October 2023, https://www.superbancos.gob.pa/info-gen-bancos/informacion-bancos-reporte.

411 "Asociación Bancaria pide regular a empresas Fintech en Panamá," Sistema Economico Latinoamericano y Del Caribe, April 16, 2019, http://www.sela.org/es/prensa/servicio-informativo/20190415/si/41031/panamafintech.

412 The BNP also offers an electronic national wallet (BEN), which allows clients to save, withdrawal from an ATM, pay for select services, and make transfers. Currently, BEN allows clients to deposit money either through Panama based payments aggregator Punto Pago or directly from a BNP bank account.

413 "Fintech in Latin America and the Caribbean: A Consolidated Ecosystem for Recovery ,"IADB, 2022, 19. https://www.superbancos.gob.pa/documentos/presentaciones/XX-Jornada-Actualizacion-Bancaria-2022/Fintechs_de_Pago.pdf.

414 Reglamento del Sistema de Liquidación Bruta en Tiempo Real," Banco Nacional de Panama, August 2019, https://www.banconal.com.pa/images/pdf/Reglamento_del_Sistema_LBTR.pdf.

415 "Transferencias y pagos en línea serán inmediatos," Panama America, n.d., https://www.panamaamerica.com.pa/economia/transferencias-y-pagos-en-linea-seran-inmediatos-1152219.

sector interviewee noted the importance of implementing a small-value transfer system.[416] The fee per transfer would be much smaller in such a system, a particular benefit to low income households.

3.2.2 LIMITED OVERSIGHT OF THE NATIONAL PAYMENT SYSTEM RAISES CONCERNS ABOUT CONSUMER PROTECTION

The emergence of non-bank financial companies that issue e-money and facilitate digital payments has some stakeholders worried about the financial sector's increased exposure to systemic risk. Interviewees representing the financial sector expressed the urgent need to establish a legal framework that designates an authoritative figure with the responsibility for overseeing the national payments system and specifying rules for who can participate in the system. Referring to FinTech companies more broadly, Interviewees said in an interview, "From our perspective, it is worrying to know that there are companies that are very committed to innovation but that, at the same time, take resources from the public and are not subjected to prudential measures."[417] Panama's general consumer protection law recognizes that consumers' rights also apply to online settings.[418] With support from the IADB and in consultation with banks and several FinTech companies, the SBP drafted a framework that proposes clear responsibilities, rules, and regulations, which it shared with the MEF, the BNP and other relevant stakeholders.[419] While all parties agreed in principle with the draft framework, they have yet to reach consensus on who should assume oversight responsibility.[420]

3.2.3 FINTECH COMPANIES STRUGGLE TO EKE OUT A LARGER MARKET SHARE

Few FinTech[421] providers operate in Panama. According to an IADB report on the FinTech landscape in the LAC region, 16 FinTech companies operated in Panama in 2021, comprising less than one percent of the total number of FinTech companies in the LAC region.[422] IADB-featured FinTechs include Adelantos/PayJoy, a former smartphone financing startup that recently launched PayJoy Cash, which offers microloan credits through digital means; Fortesza, a micro investment platform offering clients the opportunity to invest in Panama-based invoice factoring; Punto Pago, an electronic payment collection startup that offers clients the ability pay for multiple services (e.g., utility payments) through a single API; and PayCaddy, an API based payments aggregator.

Only 28 businesses nationwide currently accept cryptocurrencies as payment. These 28 companies all accept three cryptocurrencies: Bitcoin, Ethereum, and Litecoin. Even fewer formal financial institutions have opened their doors to this market. Only one commercial bank has actively explored strategies to offer bitcoin-friendly products.[423,424]

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416 Private sector interviewee, interview by the DECA team, July 2023, in person.

417 Public sector organization, interview by the DECA team, July 2023, in person.

418 "Ley No. 45 (de miercoles 31 de octubre de 2007)," Asamblea Nacional, https://acodeco.gob.pa/inicio/ley-45-de-31-de-octubre-de-2007/.

419 "Fintechs de Pago y Propuesta de Anteproyecto del SNP: XX Jornada de Actualizacion Bancaria 2022," Superintendencia de Bancos de Panamá, November 2022, https://www.superbancos.gob.pa/documentos/presentaciones/XX-Jornada-Actualizacion-Bancaria-2022/Fintechs_de_Pago.pdf.

420 Advocacy group interviewee, interview by the DECA team, August 2023, online.

421 Digital Financial Services (DFS)/FinTech: Financial services enabled by or delivered through digital technology (e.g., mobile phones, cards, the internet). DFS (e.g., payments, credit, insurance, savings, advisory) can be offered by a range of providers, from banks to a host of non-bank financial institutions, such as microfinance institutions, digital credit providers, payment providers, technology vendors, and electronic money issuers.

422 "Fintech in Latin America and the Caribbean: A Consolidated Ecosystem for Recovery," IADB, 2022, 19. https://publications.iadb.org/publications/english/document/Fintech-in-Latin-America-and-the-Caribbean-A-Consolidated-Ecosystem-for-Recovery.pdf.

423 "Comercios que aceptan cripto como medio de pago," Camara de Comercio Digital y Blockchain, accessed October 2023, https://www.camaradigitalblockchain.org/directorio-comercial/#1655241687548-dd9fcf05-359f.

424 Whitney Smith, "One of Panama's Largest Banks just became Bitcoin Friendly," Bitcoin Magazine, May 31, 2022, https://bitcoinmagazine.com/business/one-of-panamas-largest-banks-just-became-bitcoin-friendly.

BOX 10: FinTech champions

While Panama's FinTech ecosystem is still at an early stage of development, a few solutions have emerged in recent years that hope to pave the way for future growth. PayCaddy, a Banking-as-a-Service solution that enables other companies to launch financial products on their API, was one of six Panamanian-based companies accepted at Y Combinator, an international business accelerator.[425] According to a private sector interviewee, barriers to entry are high for most companies to launch their own digital payments processes, including mobile money management costs, certifications, and digital talent.[426] They hope to "democratize access" so companies can easily use FinTech without making large investments.[427]

Cuanto, one of the first FinTech solutions to be accepted at Y Combinator, aims to digitalize SME e-commerce. *Cuanto* works with merchants who may have a virtual store or transact largely through social media applications like WhatsApp or Facebook, but do have their own payments portal.[428] *Cuanto* enables these companies to share a payments link with customers through their communication method of choice.[429] It works with more than 400 SMEs in Panama and has expanded its operations to Guatemala and El Salvador. Other emerging companies include *PagueloFacil*, an online payments gateway, *Adelantos*, an online loan platform, and *Fortesza*, an investment platform.

Private and public sector actors have emphasized the importance of FinTech for Panama's future. One private sector interviewee recognized that FinTech can be a catalyst for financial inclusion and the modernization of the financial sector in the country.[430] However, entrepreneurs have said that barriers still need to be addressed to allow the sector to expand. These barriers include lack of formal regulation governing the sector, lack of incentives to drive the entry of new, few innovative ideas into the marketplace, low levels of homegrown digital talent, and lack of access to finance.

No FinTech regulation

A significant barrier to leveling the playing field for FinTech actors is the lack of regulation that clearly articulates the rules they must follow.[431] This is not for the GoP's lack of trying. In 2018, the National Assembly proposed a bill to address this regulatory gap. A main criticism is that it casts too wide a net by trying to cover an overly-broad range of issues and actors.[432,433] The bill failed to distinguish between providers of digital payments, cryptocurrencies, and other financial instruments by lumping them into an umbrella group of "specialized financial entities." The bill also included clauses related to taxing digital services, updating the national digital agenda, and other issues that seemingly were out of scope.[434] Subsequent legislative efforts to separate different

425 "Panama's PayCaddy is building simplified Banking-as-a-Service for Latin America. Rather than build from scratch or deal with legacy banks, LatAm companies can use PayCaddy API-based platform to launch financial products…", X (formerly Twitter), January 14, 2022, https://twitter.com/ycombinator/status/1482051134546141185?lang=es.

426 Private sector interviewee, interview by the DECA team, June 2023, online.

427 Private sector interviewee, interview by the DECA team, June 2023, online.

428 "Cuanto, the Panamanian Startup that Triumphs in Silicon Valley," PanamericanWorld, https://panamericanworld.com/en/magazine/startups/cuanto-panama-startup/.

429 PanamericanWorld, Cuanto.

430 "El auge de las Fintech en Panamá y la Región de Centroamérica Impulsando la inclusión financiera y la innovación económica," CAPATEC, August 2, 2023, https://capatec.org.pa/el-auge-de-las-fintech-en-panama-y-la-region-de-centroamerica-impulsando-la-inclusion-financiera-y-la-innovacion-economica/.

431 "Panamá | Fintech crecen sin una regulación establecida en el país," Agencia de Noticias de Panamá, August 1, 2022, https://dplnews.com/panama-fintech-crecen-sin-una-regulacion-establecida-en-el-pais/.

432 Felipe Echandi (@felcheck), "#Panama objetivamente cuenta con restricciones ya superadas a la #innovaciónfinanciera de los mismos bancos tradicionales y que complican el surgimiento de casos de éxito #fintech. Ver la nota que preparamos…", X, September 20, 2018, https://x.com/felcheck/status/1042767370543132672?s=20.

433 Advocacy group interviewee, interview by the DECA team, August 2023, online.

434 Advocacy group interviewee, interview by the DECA team, August 2023, online.

FinTech segments into separate bills were made, to no avail. These include two draft laws submitted in 2021[435,436] and one draft law submitted in 2022[437] to regulate the legal use of cryptocurrencies and other blockchain products in the country. One FinTech entrepreneur noted the lack of regulations protecting the capital of FinTech companies and formal incentives encouraging foreign investment.[438] The National Assembly does not have a dedicated technology commission that can stay up to speed with emerging technologies and the development of other technology-related issues.[439]

Way forward for FinTech companies

Despite the current regulatory limbo, there are reasons for FinTech companies to remain optimistic for the road ahead. In 2017, the GoP announced plans to implement the country's first FinTech incubator and the SBP announced a sandbox for Fintech services with a local bank.[440] In 2019, the SBP appointed Felipe Echandi, a founding member of the Panamanian Fintech Association, to its board of directors.[441] Echandi's record of launching *Cuenta*—a FinTech company that allows merchants to accept online card payments instantly—points to the SBP's openness to innovation.[442] FinTech companies are also trying to strategically stay ahead of regulatory changes. Several that offer payment solutions have registered themselves with the SBP to be in compliance with anti-money laundering and combating the financing of terrorism (AML/CFT) controls on a voluntary basis.[443] One FinTech company executive noted in an interview that they have opted to put in place the same compliance mechanisms required of banks and continue to monitor regulatory developments and trends in other markets.[444] He believes that these resource-intensive steps will pay off in the long run.

3.2.4 LOW ADOPTION OF ELECTRONIC SIGNATURES HAMPERS POTENTIAL OF DIGITAL CREDIT

Digital credit is currently not among the DFS products offered in Panama. This is in large part because the use of qualified electronic signature (QES), an advanced electronic signature based on a digital certificate,[445] is currently not widespread despite being legally authorized since 2008.[446] One private sector interviewee noted that the need to re-register one's QES with the National Directorate of Electronic Signature every two years for a fee is a friction point, especially given the fact that the QES is not widely accepted.[447] The fact that the Banking Law has not been updated to state explicitly that banks are authorized to use QES as part of their

435 Rodrigo Esteban Icaza García, "Iniciativas legislativas hacia el entorno 'fintech', 'blockchain' y de criptomonedas," La Estrella de Panamá, March 14, 2022, https://www.laestrella.com.pa/vida-y-cultura/tecnologia/iniciativas-legislativas-entorno-fintech-blockchain-CLle466510.

436 Rodrigo Esteban Icaza García, Iniciativas legislativas.

437 Rodrigo Esteban Icaza García, Iniciativas legislativas.

438 Private sector interviewee, interview by the DECA team, June, 2023, online.

439 "Comisiones Permanentes," Asamblea Naciona, accessed October 2023, https://www.asamblea.gob.pa/comisiones.

440 Alma Solís, "Superintendencia de Bancos de Panamá crea un Sandbox para proyecto de Fintech" SNIP Noticias Panamá, May 17, 2018, https://noticiasdepanama.com/banca/superintendencia-de-bancos-de-panama-crea-un-sandbox-para-proyecto-de-fintech/.

441 Yolanda Sandoval, "Felipe Echandi y Rafael Guardia Pérez, en la directiva de la Superintendencia de Bancos," La Prensa, October 8, 2019, https://www.prensa.com/economia/Nombran-Felipe-Echandi-Guardia-Superintendencia_0_5414458557.html.

442 "Felipe Echandi Lacayo," Superintendencia de Bancos de Panamá, https://www.superbancos.gob.pa/documentos/informacion_general/junta_directiva/FELIPE_ECHANDI_presidente.pdf.

443 "SBP supervisa los modelos de negocios innovadores de servicios financieros tecnológicos, exclusivamente en materia de PBC/FT/FPADM," Superintendencia de Bancos de Panamá, June 7, 2022, https://www.superbancos.gob.pa/nuevos-productos.

444 Private sector interviewee, interview by the DECA team, June 2023, online.

445 "Ley No. 51 (de 22 de julio de 2008)," Asamblea Nacional, https://www.firmaelectronica.gob.pa/documentos/Ley_51-Firma_electronicas_almacenamiento_tecnologico_y_comercio_electronico.pdf.

446 Private sector association interviewee, interview by the DECA team, July 2023, online.

447 Private sector interviewee, interview by the DECA team, July 2023, in person.

due diligence process may contribute to the reluctance of some banks to accept QES. One private sector interviewee remarked that although some banks have tried to find workarounds to offer fully-digital credit products using the Electoral Tribunal to verify a customer's identification using biometric data, handwritten signatures are ultimately required.[448]

3.2.5 BANKS PLACE A BIG BET ON DIGITAL FINANCIAL SERVICES

Between 2019 and 2023, the number of mobile money users grew from nearly 60,000 to 1.7 million, representing approximately half of Panamanian adults.[449,450] While individuals most commonly use mobile money to make and receive payments and transfers for goods and services, to purchase airtime credits, and to facilitate cash-in and cash-out transactions, the number of use cases is continuously expanding. The *Instituto Nacional de Estadística y Censo* (INEC) recently announced its plans to remunerate its team of census enumerators and supervisors by sending their payment directly via mobile money.[451] While other countries in Central America, including El Salvador and Honduras,[452] have released e-money regulations that legally differentiate between DFS products on the market, Panama has yet to do so. Over the past five years, banks in Panama have released three key DFS products: *Yappy*, a bank-led DFS product backed by Banco General (see Box 11); *NEQUI*, backed by Banistmo in a joint partnerships with PayPal; and *BEN*, the mobile wallet offered by BNP (see Figure 15).

BOX 11: The timely arrival of Yappy[453]

Yappy, the DFS product offered by Banco General, has acquired approximately 1.4 million individual users since its launch in June 2019.[454] Its sister product, *Yappy Emprendedor* (now called *Yappy Comercial*), launched six months later in December 2019, and has a user base of about 24,000 business owners and affiliates.

Interviewees consistently point to the exponential growth of both products and their timely arrival just before the COVID-19 pandemic to showcase the potential of DFS as a catalyst for digital financial inclusion and as a tool for internal remittances in Panama.[455] Examples of the positive impact *Yappy* has had include:

- Approximately 50 percent of *Yappy* transactions have a value of less than USD 10, indicating that the app is used for everyday purchases.
- *Más Móvil* and *Claro* subscribers are not charged for data when they use *Yappy* thanks to an agreement between *Banco General* and the MNOs to zero-rate the app.

448 Private sector interviewee, interview by the DECA team, July 2023, in person.

449 Nequi was the only DFS product until mid-2009. According to data published in El Capital Financiero, Nequi registered 60,000 users in 2019.

450 To estimate the share of Panamanians using mobile money, the DECA team divided the total number of mobile money users (amounting to approximately 1.7 million after aggregating the figures that are publicly available for the three mobile money products offered in the market) by Panama's adult population size aged 15 years and older (approximately 3.3 million individuals, according to the UNFPA). Note that this estimate assumes that the total number of mobile money users are unique users, i.e., each user only has one mobile money product.

451 "INEC garantiza pago a empadronadores por la billetera BEN," EcoTV Panama, January 15, 2023, https://www.ecotvpanama.com/economia/inec-garantiza-pago-empadronadores-la-billetera-ben-n5831648.

452 "Regulation in El Salvador and Honduras: On the Brink of Enabling," GSMA, September 21, 2016, https://www.gsma.com/mobilefordevelopment/country/honduras/regulation-in-el-salvador-and-honduras-on-the-brink-of-enabling/.

453 Unless otherwise indicated, all information presented in the case study was derived from the DECA Team's interview with Banco General in Panama City in July 2023.

454 "Banco General: 1 millon 400 mill panamenos tienen Yappy," EcoTV Panama, July 30, 2023, https://www.ecotvpanama.com/perfiles-360/programas/banco-general-1-millon-400-mil-panamenos-tienen-yappy-n5905269.

455 Unless otherwise indicated, all information presented in the case study was derived from the DECA Team's interview with Banco General in Panama City in July 2023.

BOX 11 (CONTINUED): The timely arrival of Yappy

- *Banco General* is exploring opportunities to use transactional data to help *Yappy* users build their credit history. One interviewee noted that rural households and businesses that historically have not had access to credit cards and other e-payment forms have especially benefited from *Yappy*.[456]

Yappy's popularity shows no sign of waning. In April 2023, *PedidosYa*, a multinational online food ordering and delivery service became one of the latest companies to add *Yappy* as a payment option.[457] Increasing merchant acceptance is central to creating a sustainable mobile money ecosystem.

No interoperability in the digital financial services ecosystem

Achieving interoperability is one of the marks of a healthy DFS ecosystem, as it allows for transactions to be completed between users of different DFS products.[458,459] In Panama, however, the three DFS products on offer—*Yappy*, *Nequi*, and *BEN*—are currently not interoperable (see Figure 15). Each DFS product is affiliated with a different commercial bank, which means they each have different eligibility criteria. A customer must have a bank account with *Banco General* in order to use *Yappy*. It will be interesting to observe how the forthcoming entry of *Tigo Money*, which is affiliated with the MNO Tigo, will play out in Panama's bank-led DFS market.

FIGURE 15: Digital Financial Services in Panama[460]

Digital Financial Services in Panama	yappy	bn	NEQUI	tigo money
Needs a bank account	Yes	Yes	Yes	This e-mobile money product Was planned for 2023, however imbementation status is unclear They have launched a pilot in Starbucks in Costa del Este Panama.
Bank that owns the product	General Bank	National Bank of Panama	Banistmo	
Year of launch	2019	2020	2017	
Number of users	1.4 millions	10,500	257,000	
Transaction volume	1,000,000 transactions	300,000 transactions	N/A	
Number of commercial partners	24,000	3,694	N/A	

Sources: *EcoTV Panama*, *NEQUI*, *Banco Nacional*, *Martes Financiero*, *Martes Financiero*, *NEQUI*

456 Business organization interviewee, interview by the DECA team, July 2023, online.

457 "PedidosYa suma nuevo método de pago en la entrega," TyN Magazine, April 21, 2023, https://tynmagazine.com/pedidosya-suma-nuevo-metodo-de-pago-en-la-entrega/.

458 Lamia Naji, "How mobile money is increasingly interoperable," GSMA, June 12, 2020, https://www.gsma.com/mobilefordevelopment/blog/how-mobile-money-is-increasingly-interoperable/.

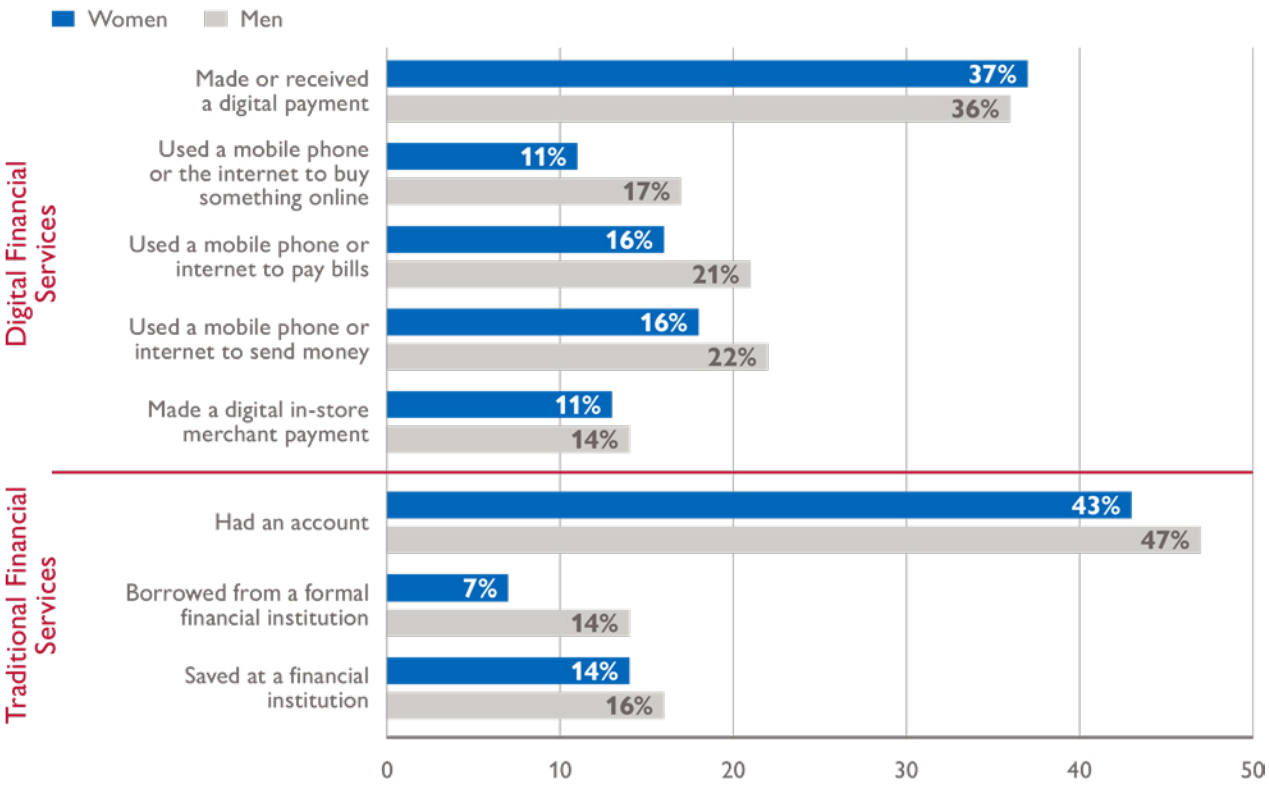
459 Brazil's central bank-operated fast retail payment system, Pix, offers a good example of interoperability. All large financial institutions are obligated to allow their clients to link their accounts to Pix.

460 Nequi is an independent neobank of Banistmo, and TigoMoney is a mobile money tool supported by Tigo.

3.2.6 FINANCIAL INCLUSION IN PANAMA

Panama's position as a regional financial hub, along with the dominance of its banking sector, risks masking the relatively lower levels of financial inclusion of women and individuals in rural areas compared to men and those living in urban areas, (see Figures 16 and 17). With a Gini index value of 50.9 in 2021 and a national poverty rate of about 22 percent in 2019, it stands to reason that lower-income individuals and those with lower educational attainment are relatively less financially included than their wealthier and more educated peers.[461,462] Refugees, asylum seekers, and migrants are likely to be financially excluded altogether. Digitalization can exacerbate existing inequalities, so it is critically important for the GoP, FSPs, and members of the international development community to promote digital financial inclusion extensively.

FIGURE 16: Differences In financial inclusion, gender



Source: Global Findex 2021

WOMEN'S FINANCIAL INCLUSION

According to the 2021 Global Findex, more Panamanian men than women have an account by three percentage points (see Figure 16).[463] The gender gap in account ownership in Panama is seemingly marginal when compared to that of its Central American peers, however it is no less important to address.[464] This is because the data does not capture how gender interacts with other socio-economic factors such as income level, geographic location, and educational attainment.

461 "Gini Index - Panama," World Bank, accessed October 2023, https://data.worldbank.org/indicator/SI.POV.GINI?locations=PA.

462 "Poverty headcount ratio at national poverty lines (% of population)," World Bank, accessed October 2023, https://data.worldbank.org/indicator/SI.POV.NAHC?locations=PA.

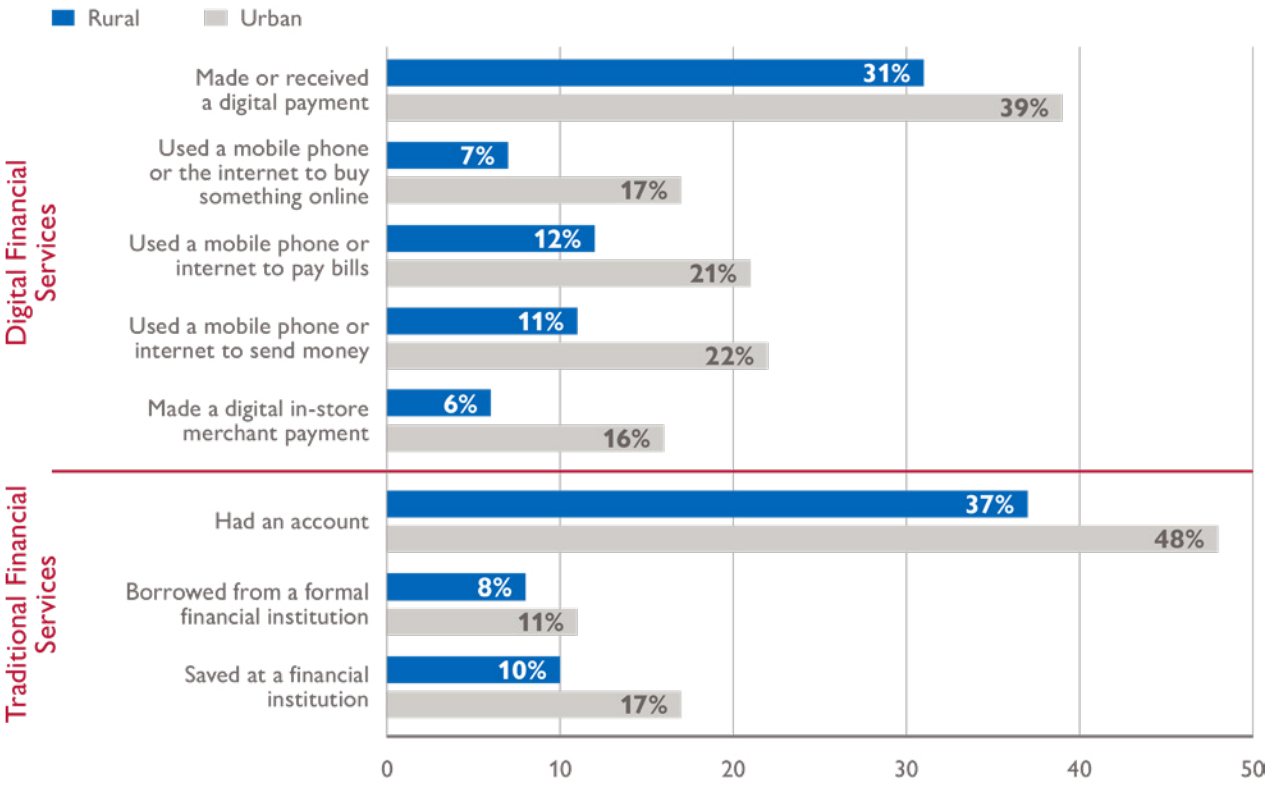
463 "Global Findex, 2021," World Bank, accessed October 2023, https://www.worldbank.org/en/publication/globalfindex/.

464 The gender gap in account ownership in each Central American country is as follows: Honduras (20 percentage points), El Salvador (16 percentage points), Costa Rica (15 percentage points), Nicaragua (9 percentage points), Guatemala (6 percentage points).

A greater cause for concern is Panama's more pronounced gender gap in the access to and use of DFS, for which the use of a mobile phone or the internet to carry out financial transactions can serve as a useful proxy. The data reveal that 16 percent of women used a mobile phone or the internet to send money and the same share of women used a mobile phone or the internet to pay bills. These figures are 22 percent and 21 percent for men, respectively. Differences between women and men's use of mobile phones to carry out financial transactions in Panama are similar to those observed across its neighbors in Central America.

There is mounting evidence that digitalization exacerbates gender inequalities.[465] This is true in Panama, where women experience inequality in the labor force and beyond. Panama ranks in the last quartile of all Latin American countries on the Women, Business, and the Law 2023 index, which measures legal differences between men's and women's access to economic opportunities.[466] Panama has a ways to go to revise laws to improve women's pay and to address the constraints that women face when starting and running a business.[467]

FIGURE 17: Differences in financial inclusion, rural/urban



Source: *Global Findex 2021*

Interviewees in the financial sector noted that banks in Panama generally do not see it as necessary to launch programs tailored specifically for women. The prevailing sentiment among banking sector interviewees is that

465 "Economic Commission for Latin America and the Caribbean (ECLAC), Gender equality and women's and girls' autonomy in the digital era: contributions of education and digital transformation in Latin America and the Caribbean," ECLAC, 2023, https://www.cepal.org/en/publications/48702-gender-equality-and-womens-and-girls-autonomy-digital-era-contributions-education.

466 "Women, Business and the Law 2023," World Bank, 2023, https://openknowledge.worldbank.org/server/api/core/bitstreams/b60c615b-09e7-46e4-84c1-bd5f4ab88903/content.

467 World Bank, "Women, Business and the Law 2023: Panama," World Bank, accessed October 2023, https://wbl.worldbank.org/content/dam/documents/wbl/2023/snapshots/Panama.pdf.

there is no significant gender disparity in the access to and use of financial products.[468,469] Several interviewees pointed to the presence of women on their board of directors and management teams and the high representation of women in entrepreneurship to support their view that women in Panama are economically empowered. They suggested that a wider gender gap may exist in rural areas and among population segments that are low income and that have lower educational attainment, but acknowledged that they do not have readily available data to validate this.

Some financial actors have taken corrective steps. MFIs in Panama, such as Microserfin tend to offer solutions tailored to women's unique needs and preferences.[470] Proparco, a French development finance institution, has collaborated with two financial institutions in Panama to support financing for women's entrepreneurship. These include a partnership with Banesco to offer a credit line specifically for women-led SMEs[471] and with Capital Bank to offer a credit line of which 30 percent will target women-led SMEs.[472]

Urban-rural divide

According to the SBP, in 2021, nearly two-thirds of all bank branches in the country were located in the province of Panama, which is home to just one-third of the national population.[473,474] Given the high level of bank branches clustered in urban zones, it is not surprising to find stark geographic disparities in financial inclusion in Panama. MSMEs located outside of the province of Panama receive just one-third of all bank-issued loans (see Figure 18).[475] The 2021 Global Findex data similarly reflect a striking contrast in account ownership between individuals across geography, with 37 percent of adults in rural areas having an account compared to 48 percent of those in urban areas.

468 Private sector interviewee, interview by the DECA team, July 2023, in person.

469 Financial sector actor, interview by the DECA team, July 2023, in person.

470 "Informe de Gestión 2022 Panamá," Microserfin, September 2023, https://microserfin.com/wp-content/uploads/2023/09/Informe-de-Gestion-2022-Microserfin.pdf.

471 "Agir Ensemble Pour Plus D'impacts," PROPARCO, n.d., https://www.proparco.fr/en/carte-des-projets/banesco-panama.

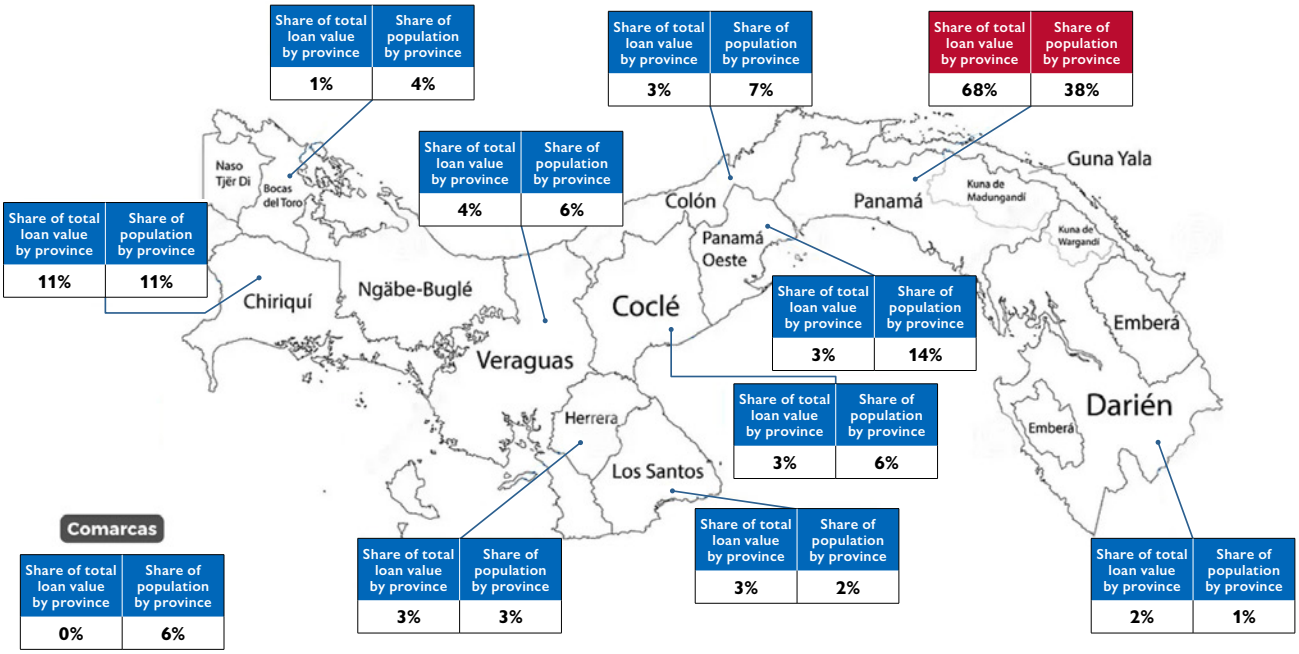
472 "Proparco partners with Capital Bank to support women entrepreneurship in Panama," 2X Challenge, n.d., https://www.2xchallenge.org/new-blog/2020/06/16/proparco-partners-with-capital-bank-to-support-women-entrepreneurship-in-panama.

473 "Informe de Bancarización 2021," Superintendencia de Bancos de Panamá, 021) https://www.superbancos.gob.pa/documentos/financiera_y_estadistica/estudios/Inf_Bancarizacion21.pdf?v=1.00.

474 Beatriz Zumbado, "Perfil socioeconómico del electorado panameño," Edición No. 24, January 2020, 25–37. https://www.cidempanama.org/files/2019/rrpp24/perfil-socioeconomico.pdf.

475 Beatriz Zumbado, Perfil socioeconómico.

FIGURE 18: Share of MSMEs with a bank loan and share of national population by province



Source: *Superintendencia de Bancos de Panama; Centro de Iniciativas Democráticas*

The rural-urban divide in access to and use of DFS is even more noticeable in light of the challenges in gaining access to reliable and affordable broadband and mobile services in rural areas. Interviewees from a private sector organization found that customers often run out of data, impeding their ability to complete financial transactions online and to participate in digital literacy training programs offered by the MFI.[476] To address this challenge, Microserfin allows customers to make their loan payments at partner FSPs such as *Punto Pago*, a FinTech company that offers payment solutions through both a mobile app and an extensive network of kiosks, or interactive terminals, located across the country.[477] Microserfin financial advisors have been equipped with tablets that have both online and offline functionality. This enables loan officers to process loan applications more quickly and closer to client locations, in places that have more limited internet connectivity.

Refugees, asylum seekers, and migrants

According to an international development organization, approximately 13,000 refugees and asylum seekers currently live in Panama.[478] In addition, a record 520,000 migrants crossed the Darién Gap in 2023.[479] The influx of migrants presents both challenges and opportunities for receiving countries in Central America. On one hand, the arrival of large numbers of migrants can strain resources such as healthcare, education, and social services. On the other hand, migrants can contribute to local economies through remittances sent home, and they can also fill labor gaps in certain sectors. Data on access to and use of financial products

476 Private sector interviewee, interview by the DECA team, July 2023, online.

477 "Preguntas frecuentes," Microserfin, accessed October 2023, https://microserfin.com/contacto/preguntas-frecuentes-punto-pago/.

478 "Panama Factsheet – May–June 2023," UNHCR, July 31, 2023, https://www.acnur.org/media/unhcr-multi-country-office-panama-country-fact-sheet-panama-may-june-2023.

479 "Record half-million migrants crossed Latin America's dangerous Darien Gap in 2023," Reuters, January 3, 2024, https://www.reuters.com/world/americas/record-half-million-migrants-crossed-latin-americas-dangerous-darien-gap-2023-2024-01-03/#:~:text=PANAMA%20CITY%2C%20Jan%202%20.

and services by refugees and asylum seekers in Panama is scarce, and even more so for migrants. The scant data that is available suggests that only a small minority across all three groups have access to any type of financial products or services, including DFS. One private sector interviewee noted that the requirements for opening a bank account may be too burdensome for these groups and for those that trade internationally and that there is very little desire among commercial banks to design specialized financial products and services for this segment due to the regulatory risks that this entails.[480] At BNP, savings account requirements include formal identification documents, proof of income, and an initial deposit between 10 to 5,000 Bolanos (equivalent to USD 10 to USD 5,000) depending on legal identity (local natural entity, local legal entity, or foreign).[481]

Of these three vulnerable groups, refugees may be in the strongest position to gain access to financial services given their legal status. Refugees may take advantage of efforts that the National Office for the Attention of Refugees (ONPAR) coordinates with FSPs on an ad hoc basis.[482] Asylum seekers continuously face difficulties gaining access to financial services and other basic services due to long wait times associated with entry into the asylum system.[483] Based on the GoP's plans to enhance measures to halt the flow of migrants, it is highly unlikely that FSPs will be incentivized to cater to this group in the foreseeable future. These measures include decreasing the maximum tourist stay from 90 days to 15 days and increasing the minimum money requirement for entry from USD 500 to at least USD 1,000.[484]

USAID is making efforts through its *Integrated Responses on Migration from Central America* (IRM), to serve these segments. These include collaboration between the International Organization for Migration (IOM), which implements IRM, and Microserfin to offer financial education training to migrants.[485] CAF recently launched an innovation challenge to identify digital solutions that promote the financial inclusion of migrants and their families.[486] One Colombian refugee described his journey applying for credit with no banking records. The Red Cross helped him acquire a food truck, and Microserfin provided his first loan of USD 500 and a subsequent loan for USD 2,000. Today, he owns a coffee and flower shop in Panama City, and much of his business transactions are now done digitally using Microserfin tools as well as others such as Yappy. Unfortunately, few other donor organizations offer this support.[487]

3.2.7 Government ramps up efforts to strengthen financial inclusion

The GoP has demonstrated its commitment to strengthening financial inclusion, especially in recent years. The *Vale Digital Solidario* initiative (hereafter referred to as *Vale Digital*, which loosely translates to "digital voucher") is arguably the GoP's most successful financial inclusion initiative given its large-scale impact

480 Private sector interviewee, interview by the DECA team, July 2023, in person.

481 "Banco Nacional de Panamá: revisa los requisitos para abrir una cuenta de ahorro de manera fácil," La República, January 18, 2023, https://larepublica.pe/datos-lr/2023/01/18/banco-nacional-de-panama-como-abrir-una-cuenta-de-ahorro-en-el-banco-nacional-en-linea-abrir-cuenta-online-panama-requsitos-lrtm.

482 "Creditos y Servicios Bancarios," Ministerio de Gobierno, accessed October 2023, https://www.mingob.gob.pa/onpar/creditos-y-servicios-bancarios/.

483 "2021 Country Reports on Human Rights Practices: Panama," U.S. Department of State, 2021, https://www.state.gov/reports/2021-country-reports-on-human-rights-practices/panama/.

484 "Panama to increase deportations, efforts to halt Darien Gap crossings," Al Jazeera, September 8, 2023, https://www.aljazeera.com/news/2023/9/8/panama-to-increase-deportations-new-efforts-to-halt-darien-gap-crossings.

485 "Microserfin apoya a OIM en el fortalecimiento de capacidades financieras de la población migrante en Panamá,) News in America, September 23, 2023, https://newsinamerica.com/pdcc/economia/2023/microserfin-apoya-a-oim-en-el-fortalecimiento-de-capacidades-financieras-de-la-poblacion-migrante-en-panama/.

486 "Abierta la convocatoria del Laboratorio CAF de Inclusión Financiera 2023," CAF, August 29, 2023, https://www.caf.com/es/actualidad/noticias/2023/08/abierta-la-convocatoria-del-laboratorio-caf-de-inclusion-financiera-2023/.

487 Anonymous refugee interviewee, interview by the DECA team, July 2023, in person.

(see Box 12). The SBP's launch of a digital platform called *Tu Balboa Con Sentido* in 2019 is part of the rollout of the National Strategy on Financial Education. The digital platform disseminates information and guidance related to personal and business finance to the general public.[488] It also offers a virtual training course that covers personal finances, financial education for children, and financial inclusion[489], which approximately 4,800 individuals have participated in as of October 2022.[490]

BOX 12: The Vale Digital Solidario helps vulnerable households build financial resilience during the COVID-19 pandemic

IIn March 2020, the *Ministerio de Desarrollo Social de Panamá* (MIDES) led the GoP's launch of Vale Digital to deploy monthly electronic government-to-persons (G2P) transfers of USD 120 to help qualified beneficiaries respond to the negative economic impacts of the COVID-19 pandemic.[491] At the time of this assessment, the initiative was still operational, with at least 1.3 million individuals benefiting from it.[492,493]

Beneficiaries initially received their transfers through their national identity (ID) cards, and could in turn complete purchases at affiliated merchants, buy mobile top-up credits, pay for public transportation fees, and make ATM withdrawals by scanning the quick response (QR) code located on their ID card. Beginning in 2023, beneficiaries received their transfers through the *Listo Wallet* app, which the AIG and BNP developed to facilitate a range of G2P transfers.[494] In addition to the Vale Digital, these include financial aid and scholarship disbursements awarded by *Instituto para la Formación y Aprovechamiento de Recursos Humanos* (IFARHU) and other G2P transfers that the GoP might deploy in the future.[495] The Listo Wallet effectively functions as a mobile money product linked to the ID cards, which helps ensure that funds reach the intended beneficiaries.

Multiple interviewees representing a wide range of sectors of the digital economy praised the transfer of monetary subsidies through Vale Digital. Some noted that it can serve as a model for future GoP efforts to promote digital finance and other social development objectives.[496,497,498] Beneficiaries are required to complete 24 hours of community service each month or to participate in 10 hours of online introductory courses on various topics, including cybersecurity and English, offered by *Instituto Nacional de Formación Profesional y Capacitación para el Desarrollo Humano* (INADEH).[499] National authorities have initiated discussions on how to scale G2P payments through the Listo Wallet and how to create an open instant payment system.[500] However, in December 2023 AIG Deputy Administrator

488 "Tu Balboa Con Sentido," https://tubalboaconsentido.gob.pa/.

489 Tu Balboa Con Sentido.

490 "Memoria 2022," Superintendencia de Bancos de Panamá, 2022, https://www.superbancos.gob.pa/documentos/institucional/IA22/Memoria-2022.pdf.

491 "Vale Digital Solidario," MIDES, January 2022, https://www.mides.gob.pa/wp-content/uploads/2022/01/Paso-a-Paso-Vale-digital-solidario-y-Ficha-v-3.5.pdf.

492 "Consejo de Gabinete extiende vigencia del Vale Digital por el mes de octubre," Ministerio de la Presidencia, October 3, 2023, https://www.presidencia.gob.pa/Notas-de-prensa/Consejo-de-Gabinete-extiende-vigencia-del-Vale-Digital-por-el-mes-de-octubre.

493 "Gobierno Nacional extiende Vale Digital Solidario hasta febrero de 2023," Ministerio de la Presidencia, December 30, 2022, https://www.presidencia.gob.pa/en/Notas-de-prensa/Gobierno-Nacional-extiende-Vale-Digital-Solidario-hasta-febrero-de-2023.

494 Teiga Castrellón, "AIG: Estudiantes becados del Ifarhu pueden registrarse en Listo hasta el 3 de enero," Telemetro.com, December 30, 2022, https://www.telemetro.com/nacionales/aig-estudiantes-becados-del-ifarhu-pueden-registrarse-listo-el-3-enero-n5824770.

495 Gabriel Medina, "PASE-U: ¿cómo verificar mi PAGO de la beca digital en LISTO WALLET?," La República, October 23, 2023, https://larepublica.pe/datos-lr/panama/2023/08/11/paseu-como-verificar-mi-pago-de-la-beca-digital-en-listo-wallet-panama-lrtmc-921745.

496 Private sector interviewee, interview by the DECA team, June 2023, online.

497 Private sector interviewee, interview by the DECA team, July 2023, in person.

498 Research institute, interview by the DECA team, July 2023, in person.

499 "Inicia Nuevo Plan Panamá Solidario," Panamá Digital, July 8, 2021, https://www.panamadigital.gob.pa/Noticia/inicia-nuevo-plan-panama-solidario.

500 Anthony Pinedo, "These are Latin America's instant payment systems," iupana, Feb 13, 2023, https://iupana.com/2023/02/13/these-are-latin-americas-instant-payment-systems/?lang=en.

BOX 12 (CONTINUED): The Vale Digital Solidario helps vulnerable households build financial resilience during the COVID-19 pandemic

Luis Carlos Stoute alleged irregularities in the management of the digital voucher platform.[501] The case was sent to the Superior Anti-Corruption Prosecutor's Office.[502]

Panama has noticeably lagged in the development of a national financial inclusion strategy. Although MEF published a proposal in 2019, none of the DECA interviewees from the financial sector were aware of the status of the proposal. The proposal laid out important recommendations, including the need to: 1) promote greater internet access, particularly in rural areas and *comarcas indígenas*, to expand the supply of DFS in a more inclusive manner; 2) update financial regulations that allow for the greater participation of FinTechs; and 3) develop a robust method for measuring financial inclusion.[503] The last recommendation is especially critical because it does not appear that the GoP collects and uses disaggregated data in a consistent and systematic way. The SBP's latest report on the state of financial inclusion does not present a breakdown of its statistics by gender or by any other relevant segments.[504]

The SBP is working with CAF to develop and deploy a revised national financial inclusion strategy, and promising signs are already emerging from this effort.[505] The website of the *La Red Panameña de Microfinanzas* (REDPAMIF), the MFI association of Panama, indicates that it is engaging with the SBP statistics department to supply data on the microfinance sector.[506] Such synergies are critical because they allow for an evidence-based and more comprehensive approach to understand and expand the level of financial services beyond the traditional banking sector.

Another welcome development is the 2022 launch of the *Plan for the Economic Empowerment of Indigenous Women of Panama*, which is co-led by multiple stakeholders, including the Vice Ministry of Indigenous Affairs, the Advisory Committee of Indigenous Women of Panama, and the National Council for the Comprehensive Development of Indigenous Peoples.[507] The plan aims to improve the level of financial education and access and to increase digital connectivity equitably for Indigenous women.

CYBERSECURITY IN THE FINANCIAL SECTOR

Over the past few years, the GoP has taken incremental steps to address cybersecurity gaps in the financial sector. The SBP has been working to integrate specific regulations on risks associated with online banking

501 Getzalette Reyes, "Una fiscalía anticorrupción investigará si hay anomalías en la administración del 'software' de la AIG," La Prensa, December 7, 2023, https://www.prensa.com/judiciales/caso-aig-investigacion-sobre-irregularidades-en-el-uso-de-software-pasa-a-la-fiscalia-superior-anticorrupcion/.

502 Getzalette Reyes, "Una fiscalía anticorrupción investigará si hay anomalías en la administración del 'software' de la AIG, December 7, 2023, https://www.prensa.com/judiciales/caso-aig-investigacion-sobre-irregularidades-en-el-uso-de-software-pasa-a-la-fiscalia-superior-anticorrupcion/.

503 "Propuesta de Estrategia de inclusión financiera," Ministerio Economía y Finanzas de Panamá, (MEF), 2019, https://www.fundacionmicrofinanzasbbva.org/revistaprogreso/propuesta-estrategia-inclusion-financiera/.

504 "Informe de Bancarización 2021, Superintendencia de Bancos de Panamá SBP), 2021, https://www.superbancos.gob.pa/documentos/financiera_y_estadistica/estudios/Inf_Bancarizacion21.pdf?v=1.00.

505 "CAF starts Technical Cooperation to Support the Implementation of Financial Education and the Design of the National Strategy for Financial Inclusion," Superintendencia de Bancos de Panamá, (SBP), February 16, 2022, https://www.superbancos.gob.pa/en/caf-tech-coop.

506 "Tu Balboa Consentido para adultos y ninos," REDPAMIF, accessed October 2023, https://redpamif.com/tu-balboa-consentido-para-adultos-y-ninos/.

507 "Plan de Empoderamiento Económico de las Mujeres Indígenas de Panamá (PEMIP 2025)," Ministerio de Gobierno, accessed October 2023, https://www.mingob.gob.pa/lanzan-plan-de-empoderamiento-economico-para-mujeres-indigenas/.

services into the sectoral regulatory framework.[508] SBP and AIG, through CSIRT Panama, have also worked closely to establish a sectoral CSIRT in the financial sector.[509] While there are no specific regulations on reporting cyber incidents at the sectoral level, the SBP is considering formalizing reporting obligations related to technology risks. In 2021, SBP and AIG signed a cooperation MOU,[510] requiring cooperation in training, sharing information, and incident reporting.[511]

Progress on many of these initiatives has been slow. According to one interviewee from a public sector organization, while leadership understands the importance of comprehensive cybersecurity measures, their inclusion into the specific regulatory framework has been postponed to address other priorities.[512] The sectoral CSIRT project has been under discussion for several years, and its current status is unclear. Resource constraints may be one reason for the lack of progress. According to a cybersecurity expert, a budget line in the forthcoming IADB loan will be allocated for a specific consultancy related to this project.[513] Coordination between the GoP and the banking sector is suboptimal. ABP are not involved in and do not work closely with CSIRT Panama.[514] Another interviewee from the banking sector said they have not participated in any whole sector or national level cyber drills.[515]

It is the banking sector, like the telecommunications sector, that has largely taken the lead on cybersecurity capacity-building. A financial organization noted that cybersecurity is prioritized over its digital core business.[516] Another bank emphasized that banks go beyond minimum security requirements and even domestic regulatory frameworks to adopt the highest security standards.[517] Another interviewee from the banking sector said that they have not participated in national cyber drills, but they do organize internal simulations to test their capabilities in different scenarios. ABP hosts a cybersecurity committee composed of security professionals from its members that regularly discusses best practices and cooperation with the GoP in a "peer to peer" environment.[518] ABP organizes knowledge-sharing events, like the annual cybersecurity conference "*Congreso International de Ciberseguridad*"[519] and *Congreso Latinoamericano de Seguridad Bancaria*.[520]

Banks have also engaged in cybersecurity awareness campaigns to build the capacity of their customers. One private sector interviewee noted that their institution regularly disseminates awareness-raising material to its clients.[521] A private sector interviewee said that cybersecurity has become a critical aspect of its internal communications strategy.[522] However, more work could be done to broaden reach. ABP does not have a sector-

508 "LA JUNTA DIRECTIVA: En uso de sus facultades legales," GOB, December 6, 2011. https://www.transparencia.gob.sv/institutions/rnpn/documents/271297/download.

509 "Propuesta Para la Implementación de un Equipo de Respuesta a Incidentes Cibernéticos Para el Sector Bancario en Panamá, Universidad de Panama, April 18, 2021, http://portal.amelica.org/ameli/jatsRepo/221/2212240007/html/index.html.

510 "SBP y AIG firman Acuerdo de Cooperación Interinstitucional en el marco de ciberseguridad, SBP, March 19, 2021, https://www.superbancos.gob.pa/acuerdo-coop-sbp-aig.

511 Cybersecurity expert, interview by the DECA team, July 2023, in person.

512 Public sector organization, interview by the DECA team, July 2023, in person.

513 Cybersecurity expert, interview by the DECA team, July 2023, in person

514 Private sector interviewee, interview by the DECA team, July 2023, in person.

515 Private sector interviewee, interview by the DECA team, July 2023, in person.

516 Financial sector organization, interview by the DECA team, July 2023, in person.

517 Financial sector organization, interview by the DECA team, July 2023, in person.

518 Private sector interviewee, interview by the DECA team, July 2023, in person.

519 Alexander Amaya, "III Congreso Internacional de Ciberseguridad 2023," ABP, March 24, 2023, https://asociacionbancaria.com/iii-congreso-internacional-de-ciberseguridad-2023/.

520 Private sector interviewee, interview by the DECA team, July 2023, in person.

521 Private sector interviewee, interview by the DECA team, July 2023, in person.

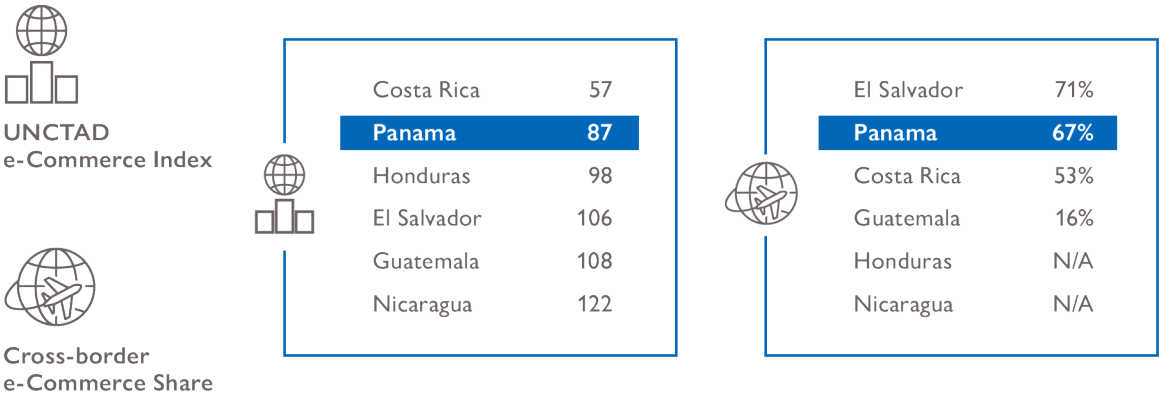
522 Private sector interviewee, interview by the DECA team, July 2023, in person.

level cyber awareness-raising program.[523] It only shares cyber information produced by members on its social media channels, which do not have many followers.[524] A private sector interviewee noted that better support and coordination from government agencies such as AIG and SBP would help.[525]

3.3 E-COMMERCE

In 2020, the UNCTAD B2C E-commerce Index, which measures a country's readiness to engage in e-commerce, ranked Panama 87 out of 152 countries, the second best in Central America just behind Costa Rica.[526]

FIGURE 19: E-commerce indicators



Source: Beyond Borders 2022–2023; UNCTAD e-Commerce Index 2020

3.3.1 DUSTING OFF AND UPDATING THE E-COMMERCE LAW

Companies that participate in electronic commerce activities in Panama must comply with the provisions in force in Law 51 of July 22, 2008 and the provisions of its Regulations in the Executive Decree of March 24, 29, 2019.[527,528,529] Many interested parties indicated that the laws need significant improvement.[530] A public sector interviewee said that as a result of the pandemic, new actors have emerged, including digital platform operators, sellers on social networks and intermediaries, which is why improvements to Law 51 of 2008 are needed.[531] E-commerce is a cross-cutting topic that falls under the responsibility of many institutions, including ACODECO and the *Dirección General de Ingresos* (DGI). Other e-commerce stakeholders have mentioned building in incentives to help drive consumers and businesses alike to use online platforms. The founder an e-commerce design and marketing company suggested empowering MICI to announce a day without value added tax (VAT) that could attract more users to e-commerce platforms.[532] This strategy has been employed in countries like

523 Private sector interviewee, interview by the DECA team, July 2023, in person.

524 Private sector interviewee, interview by the DECA team, July 2023, in person.

525 Private sector interviewee, interview by the DECA team, July 2023, in person.

526 The UNCTAD B2C E-Commerce Index 2020: Spotlight on Latin America and the Caribbean, UNCTAD, 202), 15, https://unctad.org/system/files/official-document/tn_unctad_ict4d17_en.pdf.

527 "Ley No. 43 (de 34 de julio de 2011)," Asamblea Nacional, https://www.gacetaoficial.gob.pa/pdfTemp/26771/GacetaNo_26771_20110425.pdf.

528 "Ley No. 51 (de 22 de julio de 2008)," Asamblea Nacional, https://mici.gob.pa/wp-content/uploads/2022/01/pdf-LEY-51.pdf.

529 Public sector interviewee, interview by the DECA team, online, July 2023.

530 Public sector interviewee, interview by the DECA team, July 2023, online.

531 Public sector interviewee, interview by the DECA team, online, July 2023.

532 Private sector interviewee, interview by the DECA team, July, 2023, in person.

Colombia, where the Government of Colombia integrated into the legal framework three annual 24-hour periods when certain products are exempt from the country's 19 percent VAT.[533] However, as shown below, the GoP may not wish to move in this direction.

3.3.2 E-INVOICING MANDATE GOES INTO EFFECT AMID ONGOING DISCUSSIONS TO TAX E-COMMERCE ACTIVITY

Panama is among a growing number of countries that has introduced an e-invoicing mandate.[534] After the DGI rolled out a series of pilot programs starting in 2018, the mandate went into full effect in 2023. In addition to preventing fraud and creating greater transparency, the mandate effectively paves the way for taxing e-commerce activity. In 2019, the National Assembly presented a bill to levy the Panamanian value-added tax, known as ITBMS, of seven percent on products and services exchanged on digital platforms.[535] The bill articulated several objectives, including the need to ensure that traditional businesses do not face unfair competition with the global emergence of e-commerce companies and that gig workers are protected under the country's labor laws. The bill did not pass, but the DGI has indicated that it will continue to lead efforts to actively review and propose ways to institute a tax regime.[536]

3.3.3 BUSINESS-TO-CONSUMER E-COMMERCE HAS ROOM FOR GROWTH IN PANAMA

The COVID-19 pandemic has unequivocally contributed to a global surge in business-to-consumer (B2C) e-commerce, which consists of the use of an online platform to facilitate the trading of goods and services between buyers and sellers.[537] In Panama, the data does not clearly bear this out. According to data from the International Trade Centre, the estimated average number of website visits to B2C marketplaces per individual in Panama decreased between 2019 and 2022 and has yet to return to pre-pandemic levels.[538] By comparison, this figure increased for 10 out of the 15 other LAC countries analyzed. Beyond the observed decrease in website traffic in Panama, another compelling data point is that only 14 percent of Panamanian adults used a mobile phone or the internet to buy something online in 2021.[539] As detailed later in this section, possible reasons for the latent potential of B2C e-commerce in Panama include an underdeveloped logistics sector and MSMEs' mixed experiences with digitalization.

Logistics sector

The underdevelopment of Panama's logistics sector is a major bottleneck hampering the growth of the country's B2C e-commerce landscape. MICI and DHL found that global e-commerce players such as Amazon and Alibaba are reluctant to set up forward inventory management and fulfillment hubs in Panama.[540] This is in part because

533 "Ministerio de Comercio, Industria, y Turismo," Gobierno de Colombia, "Día sin IVA," last updated June 18, 2022, https://www.mincit.gov.co/dia-sin-iva.

534 "¿Qué es la Factura Electrónica?," Ministerio Economía y Finanzas, Dirección General de Ingresos, accessed October 2023, https://dgi.mef.gob.pa/_7FacturaElectronica/felectronica.php.

535 "Anteproyecto de Ley No. 282" Asamblea Nacional, https://static.tvn-2.com/tvn/public/content/file/original/2019/1114/22/ley-que-regula-plataformas-digitales-5912b85.pdf.

536 DGI regulará las plataformas digitales para que paguen tributos al Estado," Ministerio Economía y Finanzas, August 8, 2023, https://www.mef.gob.pa/2023/08/dgi-regulara-las-plataformas-digitales-para-que-paguen-tributos-al-estado/.

537 "How COVID-19 triggered the digital and e-commerce turning point," UNCTAD, March 15, 2021, https://unctad.org/news/how-covid-19-triggered-digital-and-e-commerce-turning-point.

538 "Marketplace Explorer de América Latina y el Caribe," INTRACEN, accessed October 2023, https://intracen.org/es/recursos/herramientas/marketplace-explorer-de-america-latina-y-el-caribe.

539 "Global Findex, 2021", World Bank, accessed October 2023, https://www.worldbank.org/en/publication/globalfindex/Data.

540 "E-commerce in Latin America: And the role of Panama as an E-Commerce Hub for the Region," Global Center of Excellence: Proinvex Panama, DHL, 2022, https://www.dhl.com/content/dam/dhl/global/core/documents/pdf/glo-core-ecommerce-latam-en.pdf.

domestic logistics operations have underinvested in their technological capabilities, including warehouse automation and pick-and-pack robotics. Given the limited number of fulfillment centers in Panama, domestic consumers must rely on parcel forwarding services and smaller logistics firms when purchasing from global e-commerce platforms. Challenges with last-mile delivery present an additional hurdle. Domestic consumers must have packages and other mail delivered directly to post office boxes that they rent rather than directly to their doorsteps because Panama does not have a postal code.[541] This may in part explain why Panama ranked 145 out of 168 countries on the 2021 Universal Postal Union (UPU)'s Integrated Index for Postal Development (2IPD),[542] scoring 9.63 out of 100 across four main categories of postal health, including reliability, reach, relevance, and resilience.[543] The country has one of the least developed postal networks among its immediate neighbors. By comparison, El Salvador ranks 110, Costa Rica ranks 93, and Colombia ranks 52 on the UPU.

MSMEs' varying experiences with digitalization

The highly diverse nature of MSMEs—in terms of level of formality, size, and other variables—make it difficult to form a generalized view of their experiences with digitalization. MSME entrepreneurs in Panama tend to have a positive perspective on the perceived value that digital tools can bring to their bottom line. Findings from the Global Entrepreneurship Monitor (GEM) Adult Population Survey 2022[544] show that 80 percent of early-stage entrepreneurs and 62 percent of established business owners in Panama expect to use more digital technology to sell their products in the near future (see Figure 20).[545] These statistics reflect a slightly more positive attitude toward the use of technology as a tool for recovery and resilience building among Panamanian entrepreneurs, especially early-stage entrepreneurs, compared to their regional neighbors.

541 Ana Cristina Quinchoa, "¿Por qué Panamá no tiene un sistema de códigos postales?," Panamá América, September 12, 2022, https://www.panamaamerica.com.pa/economia/por-que-panama-no-tiene-un-sistema-de-codigos-postales-1215352.

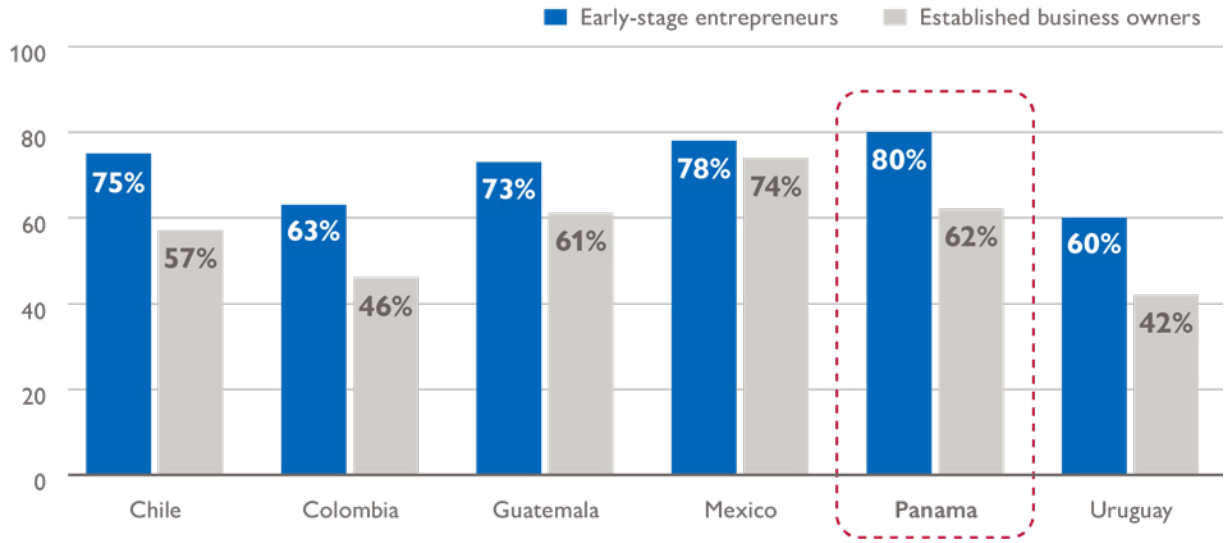
542 "Postal Development Report 2021," Universal Postal Union, "UPU," 2021, 14, https://www.upu.int/en/Publications/2IPD/Postal-Development-Report-2021.

543 Reliability reflects performance in terms of speed and predictability of delivery; reach synthesizes global connectivity by evaluating the breadth and depth of the postal operators' international network; relevance measures the intensity of demand for the full portfolio of postal services relative to the best performers in each category of postal activity; and resilience indicates the level of diversification of revenue streams, as well as the capacity to innovate and deliver inclusive postal services.

544 "Global Entrepreneurship Monitor 2022/2023 Global Report: Adapting to a 'New Normal'," London Business School, 2023, https://www.gemconsortium.org/reports/latest-global-report.

545 The GEM sample comprises entrepreneurs who are operating both informally and formally. GEM defines early-stage entrepreneurs as those who are starting or running a new business and established business owners as those who have owned and managed a business that has paid salaries, wages or any other payments to the owners, for more than 42 months. Also, the survey question asked about their expected use of digital technology in the next six months or, in other words, the near future.

FIGURE 20: Share of entrepreneurs who expected to use more digital technology to sell products in the near future



Source: *GEM Adult Population Survey 2022*

The GoP and private sector have launched a series of initiatives to help MSMEs along their digitalization journey. These free programs[546] include *Emprendiendo en el Comercio Electrónico*, now in its fourth year, which helps entrepreneurs learn how to sell their products online.[547] Another program, *Canal de Empresarias*, has supported more than 5,000 women-led businesses to have access to and invest in digital services and products and facilitate greater market access.[548] AMPYME and IADB launched the Digital Diagnosis for SMES, an online platform that diagnoses an SME's digital maturity and prescribes actions to close those gaps. It also offers a catalog of more than 600 online courses.[549]

Private sector interviewees noted that, while their clientele of entrepreneurs are anxious about using social media for business purposes, they recognize the potential value it can bring to grow their business. This is especially the case for women entrepreneurs in rural areas for whom social commerce may be a novel concept.[550] It may be challenging for women entrepreneurs because technology can be costly, especially for informal businesses. Some businesses do not lend themselves to digitalization because they do not differentiate much, such as a neighborhood corner store, or because they sell products that can only be bought in person, such as fuel.

3.3.4 DIGITAL TRADE FACILITATION

According to results from the UN Global Survey on Digital and Sustainable Trade Facilitation, Panama increased its implementation rate of trade facilitation measures between 2015 and 2023, but it still has a ways to go to put in place a full suite of digital trade mechanisms. The electronic exchange of customs declarations, certificates

546 "Ministerio de Comercio e Industrias Post," Facebook, August 20, 2020, https://www.facebook.com/MICIPMA/posts/3835961383086883/.

547 "Arranca 4ª temporada del proyecto 'Emprendiendo en el Comercio Electrónico'," Ministerio de Comercio e Industrias, July 5, 2023, https://mici.gob.pa/2023/07/05/arranca-4a-temporada-del-proyecto-emprendiendo-en-el-comercio-electronico/.

548 "Incicio," Canal de Empresarias, https://canalempresarias.org/.

549 Public sector interviewee, interview by the DECA team, July 2023, in person.

550 Private sector interviewee, interview by the DECA team, July 2023, in person.

of origin, and sanitary and phytosanitary certificates have only been partially implemented despite the fact that the law and regulations for electronic transactions have been fully implemented in the country.[551]

In 2013, MICI launched the single-window system for foreign trade (VUCE) with the aim to centralize and streamline procedures via an online portal.[552,553] According to a public sector organization, VUCE has been instrumental in decreasing the documentation and payment processing time. However, they said that there is still room for efficiency improvement, as only 80 percent of the process is automated. One of the biggest hurdles is getting all the agencies and authorities that participate in importation, exportation, and transit procedures fully digitalized.[554]

Panama is also home to four "digital free trade zones" (DFTZ). Like traditional models, DFTZs couple advantageous tax and logistics benefits with digital services tailored for the emerging e-commerce sector. This includes more reliable connectivity, data storage, and e-platforms to facilitate startup incubation and fulfillment logistics. In 2019, the GoP approved BPOS Panama Free Zone, which offers a Huawei-powered data center and outsourcing management. Other DFTZs include the Tech Valley Free Zone, the Panama Digital Gateway, which was established in July 2023,[555] and Digital Innovation District, which has proposed raising capital for its development through a blockchain-backed tokenization scheme.[556] The GoP has high expectations for DFTZs. Tech Valley Free Zone, which was approved in February 2023, is expected to deliver approximately 4,710 new jobs and attract 120 multinational companies to the country.[557] The Panama Digital Gateway will house the largest data center in Central America.

Panama is also a member of the Secretariat for the Economic Integration of Central America (SIECA) and is working to put in place a number of digitally-enabled trade facilitation mechanisms. One such mechanism is the Central American Single Declaration (DUCA-F), which would allow traders to make their customs declaration in advance.

3.3.5 COVID-19 ACCELERATES REMOTE WORK, BUT WEAK CYBERSECURITY THREATENS SME READINESS

The COVID-19 pandemic accelerated SME investment in technologies to empower remote-based work. A 2022 Microsoft report revealed that eight out of 10 SMEs in Panama acquired new technologies or invested in new equipment during the pandemic.[558] 84 percent invested in portable computing equipment, 57 percent in cloud storage, 44 percent in video calling software, and 17 percent in software for collaborative work.[559]

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551 "Trade Facilitation and Paperless Trade in Panama," UN Global Survey on Digital and Sustainable Trade Facilitation, accessed October 2023, https://www.untfsurvey.org/economy?id=PAN.

552 "VUCE- ¿Qué es VUCE?" Ministerio de Comercio e Industrias, accessed October 2023, https://mici.gob.pa/vuce-que-es-vuce/.

553 Ricardo González J., "Panamá lanza nueva ventanilla única de comercio exterior," Agencia de Noticias Panamá, June 25, 2023, https://www.anpanama.com/828-panama-lanza-nueva-ventanilla-unica-de-comercio-exterior.note.aspx.

554 Public sector organization, interview by the DECA team, July 2023, in person.

555 Nicole Pérez, "Tech Valley Free Zone y Panamá Digital Getaway son una realidad: Panamá aprueba el establecimiento de dos nuevas zonas francas," CLD Legal, accessed October 2023, https://web.archive.org/web/20230923095719/https://www.cldlegal.com/es/tech-valley-free-zone-y-panama-digital-getaway-son-una-realidad-panama-aprueba-el-establecimiento-de-dos-nuevas-zonas-francas/.

556 "Home," Innovation Smart District, 2022, https://isdistrict.com/en/.

557 "#Panamá 🇵🇦 El país con miras a convertirse en el Hub Digital de la región," aPRiORI Legal Corporativo, February 10, 2023, https://publicaciones.bdsasesores.com/apriori-blog/panama-el-pais-con-miras-a-convertirse-en-el-hub-digital-de-la-region.

558 8 de cada 10 PyMEs panameñas adquirieron nuevas tecnologías e invirtieron en nuevo equipo durante la pandemia," Microsoft, April 21, 2022, https://news.microsoft.com/es-xl/8-de-cada-10-pymes-panamenas-adquirieron-nuevas-tecnologias-e-invirtieron-en-nuevo-equipo-durante-la-pandemia/.

559 Microsoft, 8 de cada.

These new technologies come with unique cybersecurity vulnerabilities. SMEs may be unprepared to contain new cyber incidents or to safeguard personal information. 23 percent of SMEs have already experienced a cybersecurity incident.[560] An interviewee from an IT governance and risk business association indicated that the level of cybersecurity awareness among SMEs is low, and their investment resources are limited.[561] While 75 percent of SMEs consider cybersecurity a priority according to Microsoft, only 19 percent of SMEs invested in cybersecurity systems during the pandemic.[562] Only six out of 10 SMEs have cybersecurity policies and technologies,[563] and only 23 percent of SMEs reported actively building the cyber capacity of their staff.[564]

The small business administration recognizes that cybersecurity should be a priority, and that SMEs are one of the least protected sectors of the economy.[565] However, the public sector does not have a country agenda on these issues and there is no national campaign to build SME capacity.[566] AMPYME has partnered with technical institutes like IPSE and the private sector to connect cybersecurity graduates with local companies.[567] Still, more must be done to promote affordable cybersecurity products and services and build SME cyber capacity.

3.4 TECH STARTUP ENVIRONMENT

In many ways, Panama can be seen as a favorable environment for tech entrepreneurs. Panama's dollarization was not motivated by economic crisis, but it does eliminate the persistent currency depreciation and high inflationary cycles that have beleaguered many of its neighbors. In addition, while Panama's market size can be a challenge for scaling (see below), it is an advantage for a sector commonly running A/B tests of products before bringing them to market. As one public sector interviewee noted, "Executing a product deployment in Brazil is not the same as doing so in Panama, which is a small market. So a lot of companies are testing their products here."[568] It is this context that has helped facilitate the emergence of a variety of tech startups in Panama (see Figure 21 and Appendix A). Panama is home to six startups that have been accepted into the Y Combinator, a global accelerator that has an acceptance rate of about one percent.[569,570] Panama is also the only country in Central America with a unicorn company, a term given to startups with a valuation of USD 1 billion or more.[571]

560 Microsoft, 8 de cada.

561 Private sector interviewee, interview by the DECA Team, July 2023, in person.

562 Microsoft, 8 de cada

563 Microsoft, 8 de cada

564 Microsoft, 8 de cada

565 Public sector interviewee, interview by the DECA Team, July 2023, in person.

566 Public sector interviewee, interview by the DECA Team, July 2023, in person.

567 Public sector interviewee, interview by the DECA Team, July 2023, in person.

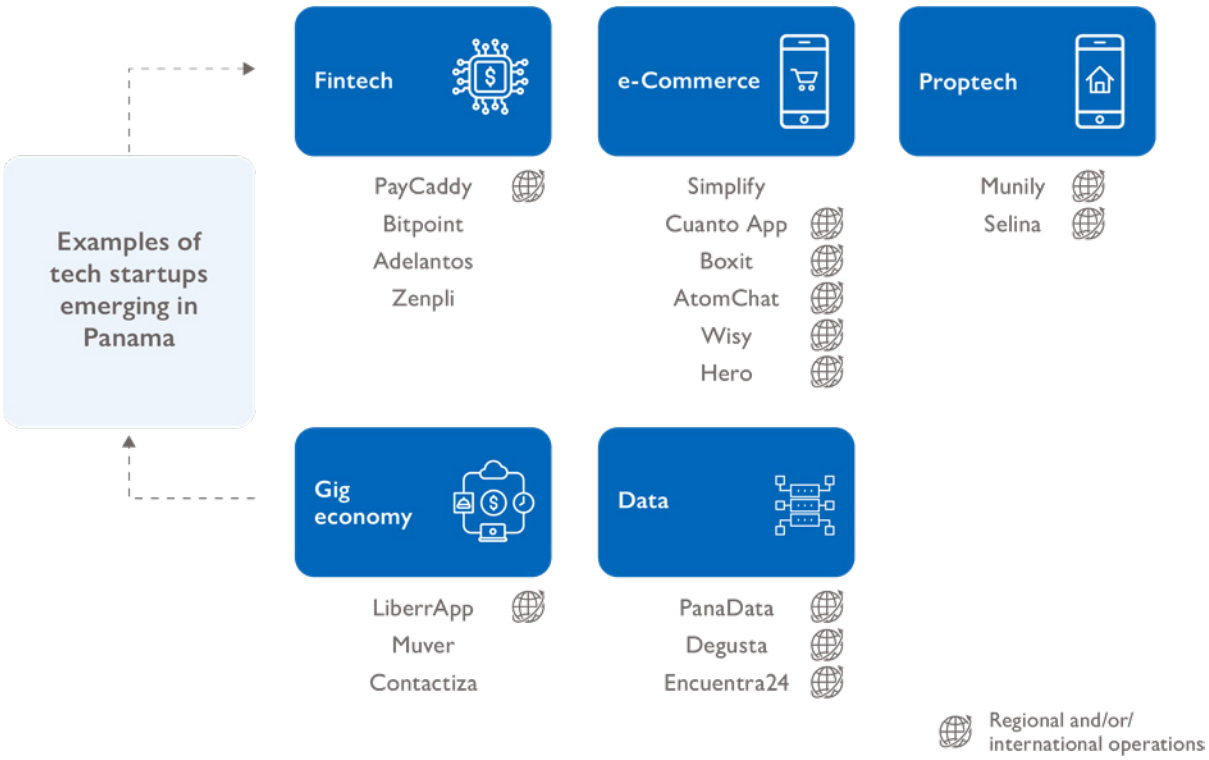
568 Public sector interviewee, interview by the DECA Team, July 2023, in person.

569 "Startup Directory," Y Combinator, n.d., https://www.ycombinator.com/companies?regions=Panama.

570 Emily Chang, "Getting Into Y Combinator Is Tougher Than It's Ever Been," Bloomberg, August 10, 2023, https://www.bloomberg.com/news/articles/2023-08-10/y-combinator-applications-show-access-is-the-toughest-ever.

571 Juan Gavasa, "The Story of Wisy, the First Unicorn Startup of Panama," Panamerican World, January 31, 2019, https://panamericanworld.com/en/magazine/business/the-story-of-wisy-the-first-unicorn-startup-of-panama/.

FIGURE 21: Examples of tech startups in Panama



The success of these companies belies the many challenges that tech entrepreneurs face. Panama's small market size can be a constraint to scaling, as is the case in other countries in Central America.[572] An interviewee who supports Panama's startup ecosystem noted, "The economy is stable and dollarized, but it is a small country so it does not make sense to just stay in Panama."[573] Other challenges include limited access to finance and the low concentration of tech startup activity in Panama City.

3.4.1 LIMITED INVESTMENT OPPORTUNITIES FOR TECH STARTUPS

Panama and the rest of the Central American countries still face challenges in providing access to financial resources to entrepreneurs.[574] Interviewees representing tech startup founders, public institutions, and BSOs recognize that the lack of access to finance is a significant constraint to launching and operating a startup.[575,576,577,578,579] Many banks and other local financial institutions in Panama are unwilling to lend to startups. Interviewees noted that banks usually request traditional collateral guarantees to approve a loan for a business. Banks, however,

572 Armando Diéguez, "¿Por qué Centroamérica carece de startups «unicornio»?," Pulso Capital, November 18, 2021, https://pulsocapital.com/por-que-centroamerica-carece-de-startups-unicornio/.

573 Private sector interviewee, interview by the DECA team, July 2023, in person.

574 Private sector interviewee, interview by the DECA team, June 2023, online.

575 Private sector interviewee, interview by the DECA team, July 2023, online.

576 Private sector interviewee, interview by the DECA team, August 2023, online.

577 Private sector interviewee, interview by the DECA team, July 2023, in person.

578 Private sector interviewee, interview by the DECA team, July 2023, in person.

579 Private sector interviewee, interview by the DECA team, July 2023, in person.

do not accept apps or digital resources.[580,581] One interviewee with a tech startup that provides personalized shopping, delivery, and transportation services exclusively for women noted that while she eventually was able to open a credit card line, two out of the three banks she petitioned denied her request. As she noted later, "I was looking for a credit card to consolidate all of the business´ finances. There was no obvious solution for the business."[582] Stakeholders commonly conclude that good connections with private investors or access to international funds seem to be the better option to grow for a tech startup in Panama.

To close this financing gap, some private and public sector stakeholders have introduced their own funding mechanisms. SENACYT[583] and AMPYME[584] launch calls to grant seed capital to SMEs and entrepreneurs throughout the country. Other initiatives come from the private sector such as the *Fundación Ciudad del Saber* (CDS), a local incubator, which has its own investment funds, as well as emerging initiatives from the Venture Capital Club made up of Escala Latam and the Entrepreneurship and Innovation Alliance, which in turn develop activities to identify projects that can be financed with a view to scaling them in the local and international markets. A FinTech startup founder experiences a multiplier effect when a startup raises investment and becomes a unicorn or a successful company. Often many spin-offs emerge, and a private investor may trust in these spin-offs as they did in the main startup.[585]

BOX 13: Business Support Organizations in Panama

BSOs in Panama offer services for mentoring, market access, and strengthening the business capabilities of entrepreneurs at different stages of maturity (see Figure 22). These stages include pre-idea, which facilitates a culture of inquiry; ideation, where entrepreneurs focus on problem-solving; startup, which is when a business starts to emerge; the valley of death, when investment exceeds revenue to keep the business alive; and SME, the peak-level of maturity, when many businesses go public.[586] CDS is one such BSO that educates early stage founders on the intricacies of digital development laws and provides programs to show startups how to integrate technology into their operations. In 2020, CDS launched an incubation program to increase the number of entrepreneurs that can scale in Panama. Since the first cohort, the foundation has invested in 18 startups.[587] It recently launched a partnership with Mastercard to support SMEs in tech and non-digital sectors in navigating their digital transformation journey.[588]

580 Private sector interviewee, interview by the DECA team, August 2023, online.

581 Private sector interviewee, interview by the DECA team, July 2023, in person.

582 Private sector interviewee, interview by the DECA team, August 2023, online.

583 "Fondos para Innovación y Emprendimiento," SENACYT, accessed October 2023, https://www.senacyt.gob.pa/fondos-para-innovacion-y-emprendimiento/.

584 "Ampyme lanza concursos de Capital Semilla para el 2022," Autoridad de la Micro, Pequena, y Mediana Empresa, April 19, 2022, https://ampyme.gob.pa/?p=32089.

585 Private sector interviewee, interview by the DECA team, June 2023, online.

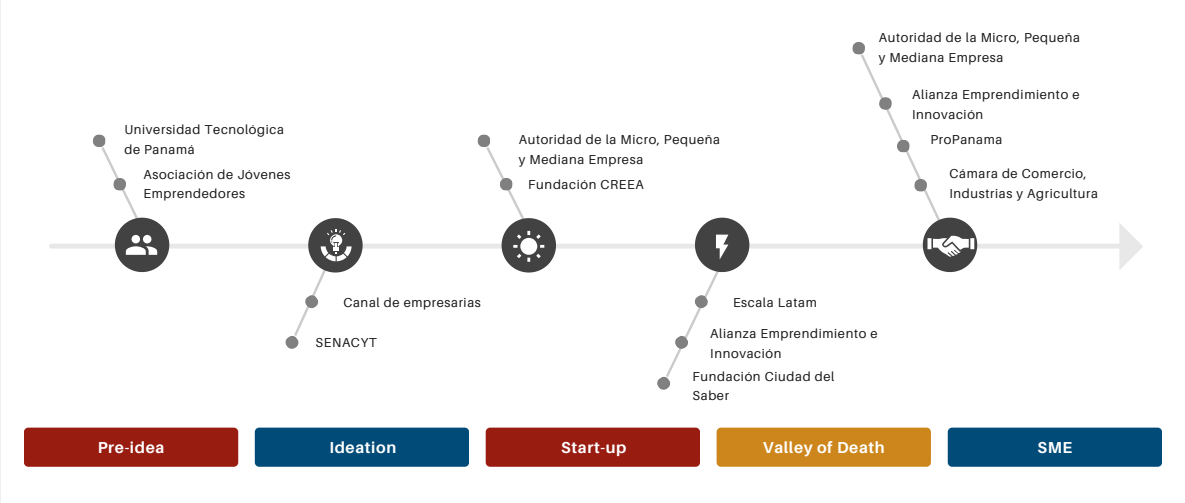
586 "Ecosystem Maturity Map: Diagnosing an ecosystem's health," ITU, https://www.itu.int/en/ITU-D/Innovation/Documents/Ecosystem%20Maturity%20Tool.pdf.

587 Private sector interviewee, interview by the DECA team, July 2023, Panama City.

588 "Alianza estratégica entre Mastercard y Ciudad del Saber busca fortalecer el ecosistema Fintech y fomentar la inclusión financiera en Panamá, "Mastercard, August 3, 2023, https://ciudaddelsaber.org/prensa/alianza-estrategica-entre-mastercard-y-ciudad-del-saber-busca-fortalecer-el-ecosistema-fintech-y-fomentar-la-inclusion-financiera-en-panama/.

BOX 13 (CONTINUED): Business Support Organizations in Panama

FIGURE 22: BSOs supporting tech startups across maturity levels



Source: Author's graphic.

While interviewees recognize that Panama has a lot of opportunities for entrepreneurship, BSOs face their own challenges with linking supported businesses with investors or financing sources.[589] In the experience of one founder, as businesses grow, even if they continue to receive positive flows of seed capital, other support is required, and public and private BSOs have to consider how to follow up on the needs of the businesses.[590] The lack of a strategy and coordination between the public and private sectors reduces opportunities for collaboration between BSOs in Panama.[591]

3.4.2 TECH STARTUP ACTIVITY IS CONCENTRATED IN PANAMA CITY

Interviewees remarked that the majority of tech startup opportunities are available only in Panama City. While this allows entrepreneurs to take advantage of the country's centralized connectivity infrastructure, financial networks, and other services, it leaves few options for those living outside the capital city. Interviewees noted that a large number of entrepreneurs travel to the capital to be part of incubation programs.[592] For many, this can result in failure and hamper the ability of innovation to scale to non-urban areas of the country. One founder explained that it has been her ties and experience working in Panama City that have allowed her to manage her startup from the interior of the country, since traveling five hours from her residence in the province of Los Santos to avail herself of these opportunities would not have been sustainable.[593] It should be a priority to strengthen the support network for entrepreneurs in the interior of the country, from micro-entrepreneurship to technological based startups. She concluded, "Starting a business in Los Santos, you have to put that idea in the parking lot."

589 Private sector interviewee, interview by the DECA team, July 2023, in person.

590 Private sector interviewee, interview by the DECA team, July 2023, online.

591 Private sector interviewee, interview by the DECA team, July 2023, in person.; Private sector interviewee, interview by the DECA team, July 2023, in person.; Private sector interviewee, interview by the DECA team, August 2023, online.

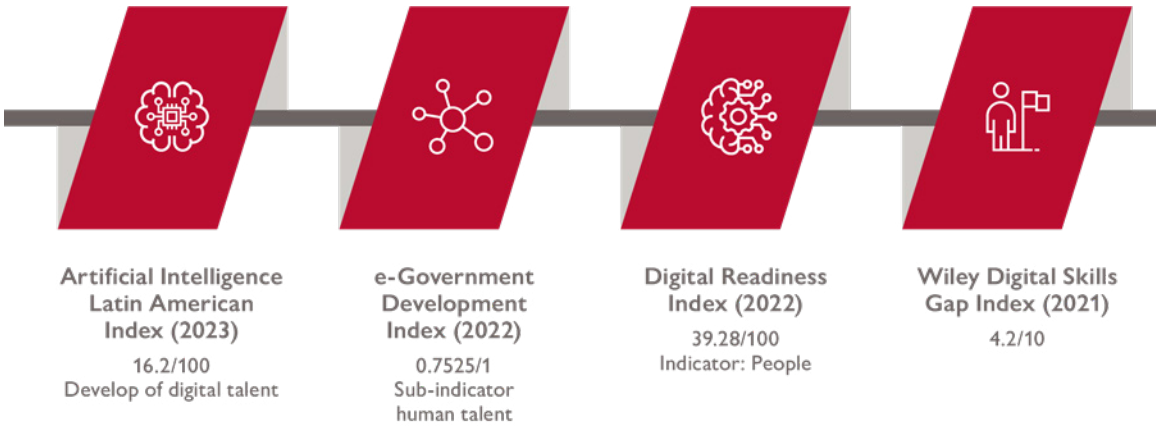
592 Private sector interviewee, interview by the DECA team, July 2023, in person.

593 Private sector interviewee, interview by the DECA team, August 2023, online.

3.5. DIGITAL TALENT

With the GoP's vision of converting Panama into the region's digital hub and efforts to attract global tech companies, it is critical for Panama to produce a pipeline of digital talent. However, the limited availability of human capital in Panama with the requisite skills to compete in a digital economy—as reflected in Panama's ranking across various indices that include digital talent as an assessment area (see Figure 23) is viewed as a major shortcoming. In an interview with the president of a non-governmental organization, he encapsulated Panama's digital talent shortage by conveying simply that, "While the country currently has a surplus of candidates who know how to populate databases, what it needs more of are candidates that know how to build models."[594]

FIGURE 23: Panama's ranking in different indices measuring digital talent



Source: Artificial Intelligence Latin American Index, UN E-Government Survey, Network Readiness Index, and Wiley Digital Skills Gap Index

While Panama ranked sixth in the composite 2021 Wiley Digital Skills Gap Index for the LAC region, just behind Uruguay, Peru, Costa Rica, Argentina, and Colombia, it lags behind even its most contiguous neighbors in the ease of finding skilled employees.[595] According to results from a CAF survey, it is most difficult to attract talent with skills in application programming, development, programming of computer network protocols or applications, software architecture, and software quality control.[596] An interviewee representing a FinTech company said that although Panamanians occupy nearly all of the positions within the units responsible for operations, sales, and compliance, they make up only 50 percent of their team of engineers and other high-skilled workers.[597] As a result, the company must spend a lot of time and resources on training up their staff.

3.5.1 SCHOOL-TO-WORK TRANSITION IS NOT FUTURE-PROOFED FOR THE DIGITAL ECONOMY

Panama does not currently have a digital competence framework for students or teachers, and integration of digital literacy in the curriculum of primary and secondary education has been limited.[598] In 2022, the President

594 Non-governmental organization, interview by the DECA team, August 2023, online.

595 "The Digital Skills Gap Index," Wiley, accessed October 2023, https://dsgi.wiley.com/global-rankings/.

596 Raul Katz, "Cadena de valor del sector de tecnologías digitales Estudio de oferta y demanda de talento humano en tecnologías digitales en Panamá," Organizacion Internacional del Trabajo and CAF, 2022, https://www.oitcinterfor.org/sites/default/files/CadenasdeValor_InformePanama_MNC.pdf.

597 Private sector interviewee, interview by the DECA team, June 2023, online.

598 "Panama," UNESCO, accessed October 2023, https://education-profiles.org/es/america-latina-y-el-caribe/panama/~tecnologia.

of Panama sanctioned Law 456, which establishes guidelines for developing and implementing public education policies that focus on facilitating the digital transformation of education.[599]

The three most popular universities and vocational schools that help to build a digital talent pipeline include UTP, *Instituto Tecnico Superior Especializado* (ITSE), and INADEH. UTP is the first university to offer a bachelor's degree in cybersecurity, as well as different courses and specializations in emerging technologies. ITSE was created in 2017 and offers 11 higher technical level careers for people who have completed their high school diploma. The careers related to the digital area are Cybersecurity, Software Development, Big Data, and Data Science. INADEH also offers talent training through short training courses. However, taking action has been difficult and there is concern from some stakeholders that current technology career graduates are not prepared for current technologies.[600] Universities and vocational schools face long accreditation processes from the Ministry of Education for new courses, degrees, or technical programs. This process can take up to five years, hindering advancement in this space.[601]

3.5.2 GOVERNMENT INCENTIVES TO STRENGTHEN THE DIGITAL TALENT POOL HAVE NOT BEEN FULLY OPTIMIZED

Over the last 15 years, the GoP has introduced a variety of incentives aimed to strengthen the country's skilled workforce and facilitate the transfer of information and technology to the local economy. In 2007, it passed a law to allow multinational corporations (MNCs) to establish regional headquarters in Panama.[602] As an incentive, MNCs are not subject to the 10 percent foreign worker quota imposed on companies operating in Panama. Interviewees had differing opinions on the extent to which the marked presence of MNCs in Panama has actually brought about greater technological diffusion and digital knowledge transfer. In 2021, Panama joined other LAC countries, including Brazil, Colombia, Costa Rica, Ecuador, and Mexico, in issuing digital nomad visas to allow non-residents to work remotely in the country[603]. Formally known as the Panama Short Stay Visa as a Remote Worker, the visa allows individuals who submit proof of employment with a foreign company and annually earn at least USD 36,000 to work in Panama for a period of up to nine months. The visa program can help to promote the transfer of digital knowledge, but this is unlikely given that there do not appear to be formal mechanisms in place to facilitate knowledge exchanges between visa holders and the local workforce.[604]

3.5.3 CALLING ON INTERNATIONAL ORGANIZATIONS TO HELP BUILD DIGITAL TALENT

Local actors have relied, to a large extent, on international organizations to implement digital talent training initiatives. One such local actor is the *Consejo del Sector Privado Para la Asistencia Educacional* (CoSPAE), which provides technical training services, as well as internship and mentoring opportunities at private sector companies. CoSPAE and others often have to overcome both technological challenges and the limited digital literacy of teachers. They noted that the lack of internet connectivity in schools in Panama City and

599 "Presidente de la República sanciona Proyecto de Ley de políticas públicas educativas para la transformación digital," Ministerio de la Presidencia, April 6, 2022, https://www.presidencia.gob.pa/Noticias/Presidente-de-la-Republica-sanciona-Proyecto-de-Ley-de-politicas-publicas-educativas-para-la-transformacion-digital-#:~:text=El%20presidente%20de%20la%20Rep%C3%BAblica,transformaci%C3%B3n%20digital%20de%20la%20educaci%C3%B3n.

600 Non-governmental organization, interview by the DECA team, August 2023, online.

601 Advocacy group interviewee, interview by the DECA team, August 2023, online.

602 "Ley No. 41 (de 24 de agosto de 2007)" Asamblea Nacional, https://mici.gob.pa/wp-content/uploads/2022/03/1-Ley-41-de-24-de-agosto-de-2007-copia.pdf.

603 "Decreto Ejecutivo No. 198 (de 7 de Mayo de 2021), Ministerio de Seguridad Publica, https://www.gacetaoficial.gob.pa/pdfTemp/29290_A/GacetaNo_29290a_20210520.pdf.

604 Mirta Rodríguez P., "Panamá quiere atraer a los nómadas digitales. Países que tienen este visado," La Estrella de Panama, May 9, 2023, https://www.laestrella.com.pa/economia/230509/panama-quiere-atraer-nomadas-digitales.

beyond limits teaching and learning processes and hinders the development of their training programs.[605] Other stakeholders have worked with foreign companies, such as Huawei, to launch digital talent programs (see Table 11). However, no public record points to a public sector policy of incentives for the training of STEM students. This may limit the efforts of stakeholders to motivate students to train in digital topics.[606]

TABLE 11: Snapshot of training and vocational programs offered by international organizations to develop digital talent in Panama

PROGRAM	PARTNERS	DESCRIPTION
Samsung Innovation Campus	Samsung, IT Chamber of Panama, UTP	This program offers a curriculum to strengthen digital skills, including artificial intelligence, internet of things, big data, and a basic course in software development and coding.
Conectados 4.0	International Youth Foundation, IADB, USAID	This program aims to scale innovative solutions to improve the lives of Venezuelan communities across Latin America. IYF partnered with the Private Sector Council for Educational Assistance to equip 140 young Venezuelan migrant women living in Panama to earn a basic income and become contributing valued, dignified members of Panamanian society.
Mcampus Comunidad	Arcos Doradas	A free and open access educational platform where young Panamanians can train for free through 14 courses and short programs on programming, technology, entrepreneurship, personal finances, emotional intelligence, and customer service.
Young Talent Hub	IADB, CoSPAE	This program aims to implement a comprehensive youth employability strategy that provides opportunities for young Panamanian university students to gain access to the job market, and offers free training in business skills.
Seed for the Future	Huawei, UTP	This program trains local talent in different Latin America countries in new technology, including 5G, artificial intelligence, the cloud, fiber, and digital energy. In 2023, Huawei announced the 9th iteration of the program.[607] The 2023 cohort included 92 students.[608] Since 2015, the program has reached 400 students from 10 countries in the region, including Costa Rica, Guatemala, Honduras, El Salvador, Panama, Dominican Republic, Venezuela, Jamaica, Trinidad and Tobago, and Suriname.[609]

CYBERSECURITY WORKFORCE DEVELOPMENT

Cybersecurity is not yet part of primary and secondary curriculum

The GoP has indicated that incorporating cyber hygiene capacity-building into Panama's educational system is important. The current national cybersecurity strategy outlines the deployment of a pilot program to integrate cyber hygiene material into primary and secondary curricula.[610] The program, called *Ciber escuelas*, would be supervised by AIG, with input from the Ministry of Education, private providers, or both. After three years,

605 Private sector organization, interview by the DECA team, July 2023, in person.

606 Private sector organization, interview by the DECA team, July 2023, in person.

607 "Huawei reúne en Costa Rica a 92 estudiantes de Centroamérica y el Caribe para su programa Semillas para el Futuro 2023," Huawei, October 11, 2023, https://www.huawei.com/mx/news/mx/2023/huawei-reune-en-costa-rica-a-estudiantes-de-centroamerica-y-el-caribe-para-semillas-para-el-futuro.

608 Huawei, Huawei reúne en Costa Rica.

609 Huawei, Huawei reúne en Costa Rica.

610 "Resolución No. 17 (de 10 de septiembre de 2021)," Republica de Panama, https://www.gacetaoficial.gob.pa/pdfTemp/29434_A/88864.pdf.

the plan proposes to expand the program nationwide. However, as of 2023, the GoP had yet to move forward with this.

Interviewees from the private sector and civil society differed in opinion on whether cyber hygiene should be a priority for secondary and primary school educators. A private sector interviewee pointed out that this pilot program should be implemented because younger students are constantly connected to social media and routinely use other online resources both in school and in their free time.[611] Others, however, highlighted Panama's poor performance across more pressing educational outcomes. PISA measures the reading, math, and science proficiency of 15-year olds in participating countries. In 2018, Panama ranked 71 in reading, 75 in math, and 75 in science comprehension out of 77 countries.[612] The OECD conducted a new evaluation in 2022, but the current administration is not optimistic.[613] An interviewee from a cybersecurity capacity-building nonprofit emphasized that "until Panama passes the PISA evaluation with an acceptable score, the country should not worry about teaching cybersecurity courses in primary and secondary schools."[614]

Academic Institutions work to fill holes in Panama's cybersecurity workforce, but gaps remain

The global cybersecurity workforce faces a critical shortfall, inhibiting its ability to counter new cyberthreats.[615] According to the 2023 ISC2 Cybersecurity Workforce report, the sector needs to add 3.9 million professionals to help organizations navigate emerging technologies like AI.[616] While the gap decreased in Latin America between 2022 and 2023, ISC2 estimates that the sector still needs to add approximately 348,259 new professionals to meet demand.[617] Although the cybersecurity skill gap in Panama has not been quantified, interviewees across private, public, and academic institutions recognize that there is a need to build a highly skilled cadre of security professionals in the country. With this in mind, institutions like UTP are working to implement programs to attract more students to cybersecurity careers.

Several academic institutions in Panama offer a variety of cybersecurity-related academic programs. These range from specialized courses and technical diplomas to full-time cybersecurity degree programs (Table 13). In the UTP, around 40 students are pursuing the Bachelor's in Cybersecurity program and the first cohort will graduate in 2025. Students who graduate from UTP are generally well-ranked locally and find a job quickly. Most UTP academics are highly trained, holding Master's degrees and PhDs from academic institutions abroad. A private sector interviewee is optimistic that the growing enrollment rate in cybersecurity academic programs is a positive step forward.[618]

611 Private sector interviewee, interview by the DECA Team, July 2023, in person.

612 Andreas Schleicher, "PISA 2018: Insights and Interpretations," OECD, 2019, 6–8. https://www.oecd.org/pisa/PISA%202018%20Insights%20and%20Interpretations%20FINAL%20PDF.pdf.

613 Miriam Lasso, "Estudiantes panameños se someten a la prueba PISA Panamá 2022; crece expectativa por resultados," Panamá América, August 2, 2022, https://www.panamaamerica.com.pa/sociedad/estudiantes-panamenos-se-someten-la-prueba-pisa-panama-2022-crece-expectativa-por.

614 Cybersecurity capacity-building nonprofit, interview by the DECA team, July 2023, in person.

615 Rob Rashotte, "Fortinet 2023 Global Cyber Skills Gap Report Finds More Needs to be Done to Untap New Talent," Fortinet, March 21, 2023, https://www.fortinet.com/blog/industry-trends/skills-gap-report-untap-talent.

616 "How the Economy, Skills Gap and Artificial Intelligence are Challenging the Global Cybersecurity Workforce," ISC2, 2023, 11. https://media.isc2.org/-/media/Project/ISC2/Main/Media/documents/research/ISC2_Cybersecurity_Workforce_Study_2023.pdf?rev=52055d08ca644293bd7497725bb7fcb4.

617 ISC2, How the Economy.

618 Private sector interviewee, interview by the DECA team, July 2023, in person.

TABLE 12: Cybersecurity academic programs in Panama

UNIVERSITY	COURSE OR DEGREE PROGRAM
Universidad Latina de Panama	• *Curso Internacional en Ciberseguridad* • *Diplomado en Ciberseguridad, especializado en Hacking Etico*
Universidad Internacional de Ciencia y Tecnología & Cisco NetWorking Academy	• *Introduction to Cybersecurity Course* • *Diploma en CISCO Certified Network Associate Security* • *Licenciatura en Ingeniería en Redes de Comunicaciones con énfasis en Seguridad* • *Maestria en Redes de Comunicaciones con énfasis en Seguridad*
Universidad Metropolitana de Educación, Ciencia y Tecnología (UMECIT)	• *Curso Ciberseguridad Cientifica y Forense* • *Maestría en Ciberseguridad*
Universidad del Istmo	• *Tecnico Universitario en Ciberseguridad* • *Licenciatura en Ingeniería en Ciberseguridad*
Universidad de Panama	• *Tenico en Seguridad e Informatica Forense*
ITSE	• *Tecnico Superior en Ciberseguridad*
Universidad Interamericana de Panama	• *Diplomado en Ciberseguridad y Gestion de Riesgos Informaticos* • *Maestría en Gerencia de Sistemas con énfasis en Seguridad Informatica*
UTP	• *Diplomado en Ciberseguridad – Centro Regional Chiriqui* • *Licenciatura en Ciberseguridad* • *Maestría en Seguridad Informatica*
Universidad Tecnologica Oteima	• *Diplomado en Ciberseguridad – Centro Regional Chiriqui* • *Licenciatura en Ciberseguridad* • *Maestría en Seguridad Informatica*

Still, gaps remain, including in the breadth of the coursework itself. Most tertiary-level technology-based career tracks, such as telecommunications engineering, do not have robust information security or cybersecurity curricula. There are no cybersecurity-related courses included in the electronic and communications engineering degree program at either the *Universidad Interamericana de Panama* or at the *Universidad de Panama*. Other institutions, such as the *Universidad Latina de Panama*, have integrated one or two cybersecurity courses into their engineering programs. Institutions may be inhibited from updating their coursework because receiving approval from the Ministry of Education can take up to two years.[619]

Rural students from low income households may also find it difficult to gain access to these programs. The majority of degree programs are based in Panama City. UTP has worked in recent years to expand STEM education to other parts of the country. Today, it operates several regional campuses, including in Chiriqui, Azuero, Bocas del Toro, Veraguas, Cocle, and Colon. However, only Chiriqui offers a cybersecurity program. While tuition at the public university is low—only USD 50 per semester,[620] representing less than 1 percent

619 Private sector interviewee, interview by the DECA Team, July 2023, in person.

620 Civil society organization, interview by the DECA team, July 2023, in person.

of Panama's GNI per capita in 2022[621]—there are no scholarships and prospective students must still cover room and board while living in the capital.

Educators at institutions like UTP are well-trained, but more work could be done to attract and retain higher quality professionals. The differential level of compensation offered to highly skilled security professionals in the private sector versus academia could be a hindrance to bringing on such professionals. A cybersecurity interviewee suggested lifting immigration restrictions to let foreign academics join the workforce. More specialized training opportunities, such as offering scholarships to local academics to pursue graduate programs abroad, may also help retain this talent.[622]

Academia, civil society, and other institutions offer shorter, more tailored vocational opportunities to help close these gaps. The IADB Lab is partnering with Numu Corporation, ITSE, and UTP to offer a technical training program called *Potenciando la Ciberseguridad y el Empleo Juvenil en Panama*. This program offers 400 scholarships targeting young adults between 18 and 29 years of age to develop the cybersecurity workforce.[623] IADB also launched the *Certificado para Jovenes en Soporte de Tecnología*, which has enrolled more than 343 students between 18 and 22 years of age from Western Panama and the Chiriqui region.[624] Students focus on topics including operative systems, cybersecurity, and computer management systems.[625] *Fundacion Comunidad Dojo* delivers short academic programs of seven to eight months, offering students with no academic background the opportunity to learn more about the sector.

Women's participation in cybersecurity is also growing. In 2019, a small group of cybersecurity professionals launched *mujeres en ciberseguridad*, which aimed to prepare 100 women for specific certifications and skills. Today, that group has grown into the Women of Security (WoSEC) Panama Chapter. WoSEC regularly organizes training events, such as the WoSEC Conference, and works with other organizations, like FCD and Women in Tech, to promote gender inclusion in cybersecurity and STEM careers. Other organizations, like CSIRT Panama, organize events like the Cyberwomen Challenge, a six-hour technical online workshop where teams learn how to develop a comprehensive cyber defense strategy.[626] According to one interviewee, most cybersecurity events now nearly reach gender parity in participation.[627,628] However, more could be done, including better coordination with domestic universities to make women's participation in these careers more visible to young graduates.

The breadth of certified security professionals remains suboptimal

There are few certified security professionals working in Panama. According to a private sector interviewee, there are 45 certified information systems auditors (CISA), 30 certified information security managers (CISM), 20 certified experts in risk and information system control (CRISC), and eight certified data privacy solutions engineers (CDPSE). By comparison, in Costa Rica, there are 202 CISA, 79 CISM, 65 CRISC, and 42 CDPSE.

621 "GNI per capita – PPP (current international $) – Panama, "World Bank, 2022, https://data.worldbank.org/indicator/NY.GNP.PCAP.PP.CD?locations=PA.

622 Cybersecurity interviewee, interview by the DECA team, July 2023, in person.

623 ITSE, "Curso de Ciberseguridad, una nueva oportunidad de formación en el ITSE," ITSE, November 1, 2022, https://www.itse.ac.pa/Curso-de-Ciberseguridad-una-nueva-oportunidad-de-formacion-en-el-ITSE.

624 Angela Funez and Lucila Pinto, "El impacto de potenciar habilidades digitales de los jóvenes," IADB, May 25, 2023, https://blogs.iadb.org/trabajo/es/el-impacto-de-potenciar-habilidades-digitales-de-los-jovenes/.

625 Angela Funez and Lucila Pinto, El impacto.

626 Civil society organization, interview by the DECA team, October 2023, online.

627 Civil society organization, interview by the DECA team, July 2023, in person.

628 Civil society organization, interview by the DECA team, October 2023, online.

One reason for this shortfall may be that few organizations require these certifications. Certification requirements are commonly limited to specialized positions, such as defensive security professionals who simulate attacks and companies that offer domestic cybersecurity consulting services.[629,630] Most companies and GoP agencies do not require their security personnel to be certified.[631] Some interviewees suggest that this leads to a chicken-egg problem, where companies do not require certifications since there are few certified professionals in the marketplace. There is also no national level information security policy requiring the appointment of a chief information security officer in each organization. Without mandates, few professionals are motivated to pursue additional training.

However, the accessibility of training opportunities does not seem to be a major concern. Key industry certifications are offered either online or through local training centers, enabling professional development even for those with other full-time commitments.[632] Interviewees said that the specific industry certifications are affordable.[633] However, other, more specialized industry certifications can range from USD 700 to USD 2,500 per course.[634] This may present too high a cost for the average security professional,[635] unless subsidized by their employer. In Panama, there are no scholarship programs or government subsidies for cybersecurity. Some organizations, like ISACA, offer free training opportunities, but space is limited.[636]

629 Civil society organization, interview by the DECA team, July 2023, in person.

630 Private sector interviewee, interview by the DECA team, July 2023, in person.

631 Private sector interviewee, interview by the DECA team, July 2023, in person.

632 Private sector interviewee, interview by the DECA team, July 2023, in person.

633 Civil society organization, interview by the DECA team, July 2023, in person.

634 Private sector organization, interview by the DECA team, July 2023, in person.

635 Private sector organization, interview by the DECA team, July 2023, in person.

636 Private sector organization, interview by the DECA Team, July 2023, in person.

Recommendations

The international development community can support and strengthen the regional and national digital ecosystems in Panama in many ways.

Table 13 below summarizes each recommendation as follows:

- **What:** Links to the recommendation details
- **Why:** Provides the motivation or intended impact of the recommendation
- **How:** Summarizes the suggested approach for implementation

The **detailed recommendations section that follows** provides further explanation of how the international development community can implement each recommendation, including:

- Relevant context
- Important considerations, including unknowns and potential challenges
- A list of relevant resources to dive deeper into relevant topics

When acting on any of these recommendations, information on best practices in digital development program design can also be helpful. The Principles for Digital Development[637] and the USAID Digital Investment Tool are great resources.

637 These principles are nine living guidelines that provide best practices for every phase of the project life cycle. They were created in consultation with various international development organizations, including USAID.

TABLE 13: Summary of DECA recommendations

	WHAT?	WHY?	HOW?
PILLAR 1: DIGITAL INFRASTRUCTURE AND ADOPTION			
1	Support the GoP in modernizing the legal, regulatory, and strategic framework governing telecommunications	Strengthened telecommunications market regulation, increased internet affordability, and reduced digital divides.	Build GoP technical capacity to draft progressive telecommunications laws and policies.
2	Strengthen the enabling environment for last-mile connectivity solutions that are more inclusive of rural, migrant, and Indigenous communities	Reduced digital divides and increased connectivity for all.	Explore feasibility of multicounty and regional mechanisms to expand connectivity into underserved areas. Facilitate regional discussion on best practices and private sector engagement.
3	Develop digital literacy initiatives, especially across underserved areas, to improve and promote digital adoption	Increased adoption and use of digital tools and services, decreased digital divides, and increased economic opportunities.	Build on existing rural networks to promote more inclusive digital literacy activities. Partner with educational stakeholders and advocate with in-country donors to scale digital literacy curricula for secondary school students and teachers.
PILLAR 2: DIGITAL SOCIETY, RIGHTS, & GOVERNANCE			
4	Strengthen the legal and regulatory framework to protect human rights online	Increased general awareness of the importance of human rights online and strengthened CSOs as vanguards for human rights online.	Create a multi-stakeholder group of CSOs, media, and GoP to build an inclusive regulatory framework regarding human rights online. Conduct workshops with Panamanian lawmakers, legal advisors, and tech experts to socialize human rights online and to translate that knowledge into effective policies.
5	Bolster and maintain better data-driven and interoperable digital systems	Enhanced data-driven decision- making as well as increased protection of data for all.	Examine public service delivery at both the national and municipal level. Facilitate a mindset shift to e-government systems. Support the GoP to build, use, and maintain interoperable digital government systems. Partner with regional and local organizations to promote better data for decision making.
6	Strengthen democratic pluralism through transparency and accessibility promotion	Improved public service delivery, transparency, and accountability.	Share lessons learned to shape more transparent government and inclusive rights-respecting digital regulation in the region Advocate for and support regional actors to follow through on open data commitments.

TABLE 13 (CONTINUED): Summary of DECA recommendations

	WHAT?	WHY?	HOW?
7	Bolster safeguards for journalists to protect media freedom	More free, fair, open, and safe online information space and greater safety and security for journalists.	Advocate for legal safeguards for media professionals. Facilitate information- sharing and best practices for advancing media freedom and investigative journalism.
PILLAR 3: DIGITAL ECONOMY			
8	Strengthen the regulatory and strategic frameworks for the digital economy	More sustainable development of Panama's digital economy.	Work with the National Center for Competitiveness (CNC) to champion the Panama Digital Hub Strategy and future policies, strategies, and regulations of the digital economy. Build a community of practice (CoP) to facilitate the exchange of knowledge, experiences, and ideas that will inform the design of regulatory and strategic frameworks for issues related to the digital economy.
9	Support upskilling initiatives to strengthen the talent pool	Broader digital talent pool that is future-proofed for the digital economy.	Partner with academia and chambers of commerce to investigate supply and demand of digital talent by conducting a digital talent needs-based assessment. Engage Panamanian youth through educational programs to raise awareness about careers in the digital economy.
10	Facilitate synergies between Panama and its neighbors to improve cross-border digital trade	Improved digital trade facilitation.	Support the GoP in strengthening the existing National Trade Facilitation Committee (NTFC). Launch a regional trade forum to discuss ongoing efforts in implementing digital customs.
11	Promote a human-centered and inclusive approach to developing the DFS market	Increased digital financial inclusion for all.	Support the Superintendency of Banks of Panama (SBP) in updating and implementing the Financial Inclusion Strategy. Shape DFS incentives in partnership with financial sector actors and GoP.
12	Guide startups along maturation process to help them expand into the global market	Stronger startup ecosystem, increased entrepreneurship and private sector participation.	Partner with incubators to shape an entrepreneurship program linking startups with the international market. Partner with local and regional initiatives to decentralize and improve quality of BSOs. Connect ProPanama with international initiatives to attract and development strategies to mobilize private investment.
CROSS-CUTTING: CYBERSECURITY			

TABLE 13 (CONTINUED): Summary of DECA recommendations

	WHAT?	WHY?	HOW?
13	Strengthen the country's cybersecurity competencies, capabilities, and resilience	Safer and more resilient digital systems, networks, and citizens that ensure cybersecurity, privacy, and long-term sustainability.	Support actors in identifying and regulating the CII sectors and assets. Work with the GoP and ASEP to integrate cybersecurity measures into the telecommunications regulatory framework. Work with stakeholders to launch a multi-sectoral working group to expedite the new cyber crime legislation. Organize capacity-building activities for lawmakers, law enforcement officials, prosecutors, and judges. Partner with stakeholders to launch a comprehensive national cybersecurity awareness-raising program.
14	Leverage relationships with regional organizations to share cybersecurity best practices among key government actors	Increased regional cybersecurity coordination.	Explore partnerships with EU and regional cybersecurity programs to help build GoP cybersecurity capacity.

DETAILED RECOMMENDATIONS

1. SUPPORT THE GOP IN MODERNIZING THE LEGAL, REGULATORY, AND STRATEGIC FRAMEWORK GOVERNING TELECOMMUNICATIONS

Since 1996, the GoP has enacted key legislative and policy milestones to transform the country's telecommunications sector. These include updates to universal service, infrastructure sharing, and spectrum policy. As the GoP prepares for the future, decisionmakers should address remaining bottlenecks that have hampered the expansion of infrastructure and the evolution to 5G.

A. Build GoP technical capacity to draft progressive telecommunications laws and policies. ITU proposed a few reforms that could advance Panama to a G4 level of regulatory maturity. These include more autonomy in decision-making for ASEP, and oversight over universal services and access, internet content, and broadcasting content. As Panama grapples with the exit of Digicel and awarding the third license, requiring operators to publish reference interconnection offers and making interconnection prices public may help promote more transparency in the marketplace. Clearly distinguishing roles and responsibilities between AIG and ASEP, especially as the GoP considers revamping the Strategic Broadband Plan, could streamline decision-making. Reducing or more rigorously enforcing legally mandated permitting processes may help operators roll out connectivity infrastructure in a more timely and consistent manner. Advocating for the GoP to create a one-stop shop window for telecommunications permits and authorizations could improve permitting processes. These offices are often operated by the local regulator and open 24 hours a day, seven days a week in order to streamline the reception of all requests in one place. These offices would also include the participation of all authorities, including the regulator, municipal authorities, environment, air traffic, fire department, customers, and so on. A fixed fee pricing methodology revised and authorized by ASEP annually in consultation with all relevant stakeholders could help, as could advocating for ASEP to create more timely processes under certain conditions, such as size of the installation itself.

So too would more strongly promoting infrastructure sharing, which, while permitted, is not widespread.

RELEVANT RESOURCES:

- A4AI Policy and Regulatory Good Practices (A4AI, 2022)
- The Digital Connectivity and Cybersecurity Partnership (DCCP)
- USAID Invest in Connect

2. STRENGTHEN THE ENABLING ENVIRONMENT FOR LAST-MILE CONNECTIVITY SOLUTIONS THAT ARE MORE INCLUSIVE OF RURAL, MIGRANT, AND INDIGENOUS COMMUNITIES.

Panama's high network penetration rate belies large gaps in rural areas. Communities in municipalities like Darién Province are far from main roads and the electrical grid. The international development community should work with regional actors to explore more inclusive approaches in areas where traditional models are hesitant to go.

A. Explore the feasibility of multi-country mechanisms to expand connectivity into underserved areas. The international development community could consider exporting lessons learned from connectivity initiatives in other parts of Latin America to rural areas of Panama. In Mexico, for example, local Indigenous internet service providers (ISPs) like *Telecomunicaciones Indígenas Comunitarias* have trained local communities to set up self- managed connectivity projects, including installing, operating, and maintaining antennas, towers,

and radio bases. The international development community could consider integrating community-level connectivity work already being piloted by humanitarian organizations, like the Red Cross, UNHCR, and WFP, which may reduce camp wait times by 24 hours in some circumstances. The international development community may consider integrating discussions around connectivity, service delivery, and addressing digital divides in Indigenous *comarcas* through indigenous forums. In addition, the international development community could explore the feasibility of broadband demand aggregation to incentivize private sector investment. Finally, the international development community could work directly with private sector companies to connect regular, commercial-off-the-shelf 4G and 5G mobile devices to satellite-based towers.

B. Facilitate regional discussion on best practices and private sector engagement. Interviewees noted 5G misinformation and local government decision-making processes as impediments to building infrastructure in areas outside Panama City. The international development community could convene ASEP, AIG, MNOs, and other regional regulatory and private sector actors to design effective awareness raising campaigns that address public perceptions of the health risks of 5G. In addition, the international development community could bring together local municipalities and tower companies from across the region to discuss best practices for designing agreements and reducing approval layers to facilitate more timely, consistent, and effective infrastructure development.

RELEVANT RESOURCES:

- Barriers to investing in last-mile connectivity (USAID, 2020)
- Infrastructure and Community Development (Internet Society, 2022)
- Closing the Coverage Gap: How innovation can drive rural connectivity (GSMA, 2019)
- Better Connectivity, Better Programs: How to Implement a Broadband Demand Aggregation Program (USAID, 2018)
- Mobile UK 5G Awareness Campaign

3. DEVELOP DIGITAL LITERACY INITIATIVES, ESPECIALLY ACROSS UNDERSERVED AREAS, TO IMPROVE AND PROMOTE DIGITAL ADOPTION

The public and private sector have invested in digital inclusion initiatives. However, more could be done to improve the quality and reach of digital literacy activities to close persistent gaps.

A. Build on existing rural networks to promote more inclusive digital literacy activities. The InfoPlazas network is a unique initiative with 370 internet-enabled centers across Panama, including in the Ngäbe-Buglé comarca, Chiriquí, and Darién. Yet, interviewees said that these sites are only as useful as the quality of the resources at their disposal. The international development community could connect academic institutions like UTP, the GoP, and local NGOs to develop better quality curricula for use by InfoPlaza facilitators. Partnering with NGOs like Geoindigena may help with designing curricula content that is more relevant for Indigenous populations—in particular women and girls—who have often been excluded from other educational initiatives and GoP investments.

B. Partner with educational stakeholders to scale digital literacy curricula for secondary school students and teachers. The international development community could build partnerships between academia, MNOs, and the Ministry of Education to scale professional development opportunities for educators on ICT topics. This work could build on best practices and adapt curricula from private sector actors like Tigo whose *Maestras Conectadas* has trained 7,600 educators since 2021. Other international actors, like UNICEF, have implemented digital learning initiatives that could be adapted for the Panamanian context. In Argentina, UNICEF implemented the "ICT-Mediated Rural Secondary Schools" program which brought innovative

ICT teaching methods to 12 secondary schools across 129 rural areas of the country by 2023. UNICEF also partnered with Microsoft to launch the Learning Passport, an e-learning platform that teaches traditional secondary school topics, such as reading, math, and writing, as well as skills development and digital skills. UNICEF has scaled this program to four countries, including Costa Rica and Honduras, and adapted it for others, such as Brazil, where the program also includes a focus on digital skills for teachers in Indigenous communities.

RELEVANT RESOURCES:

- Promoting Local Content Hosting to Development the Internet Ecosystem (Internet Society, 2015)
- Teaching on WhatsApp: Leadership and Storytelling for Grassroots Community Organization (Grassroot, MIT GOV/LAB, 2022)
- Digital Inclusion for Low-Skilled and Low-Literate People (UNESCO, 2018)
- Digital Literacy Primer (USAID, 2022)

4. STRENGTHEN THE LEGAL AND REGULATORY FRAMEWORK TO PROTECT HUMAN RIGHTS ONLINE

Panama's legacy of freedom of expression may be threatened by the weaponization of justice. In addition, Panama's legal framework lacks safeguards to protect vulnerable groups online, such as women. CSOs, media, and the GoP could collaborate to promote more inclusive human rights online, especially as other countries in the region struggle with a rapidly closing civic space.

A. Create a multi-stakeholder group of CSOs, media, and GoP to build an inclusive regulatory framework regarding human rights online. The international development community can leverage its convening power to bring together a multi-stakeholder group of key organizations to discuss how to build more sustainable and robust digital protection for Panama's citizens. This group could include representatives from ANTAI, AIG, *Espacio Civico*, IPANDETEC, Inter-American Commission on Human Rights (IACHR), the Fundación Vida Segura, and press associations like *El Colegio Nacional de Periodistas de Panamá*. This group may also help improve coordination between CSOs and the GoP, which often do not persist past political transitions. The international development community could build on the efforts of IPANDETEC, who have hosted similar convenings, including a data privacy and protection forum in November 2023.

B. Conduct workshops with Panamanian lawmakers, legal advisors, and tech experts to socialize human rights online and to translate that knowledge into effective policies. Interviewees raised concerns that members of the National Assembly do not better understand the opportunities and risks of digital technology. The international development community could facilitate capacity-building workshops with lawmakers, local or regional legal advisors, and tech experts. These workshops could build on the work of CAF, which has hosted webinars at the intersection of smart cities and human rights in Latin America. It may also be useful to draw lessons learned from UNESCO and the Open Data Latin American Initiative's digital competency trainings for civil servants. These discussions could span a wide array of themes related to the significance of human rights online, including conceptual definitions, adherence to international standards in regulation and compliance, protection of intellectual property rights, online freedoms, responsibilities and risks associated with online expression, and the management of online content. The Ombudsman's office has the potential to be a key partner in these activities.

RELEVANT RESOURCES:

- UN Hub for Human Rights and Digital Technology
- Digital Competency Framework for Civil Servants (UNESCO, 2021)
- Human Rights Legal Framework for Communications Surveillance in Latin America (AlSur, 2021)
- Digital Rights Organiser Training Material – Latin America (PSI International, 2021)

5. BOLSTER AND MAINTAIN BETTER DATA-DRIVEN AND INTEROPERABLE DIGITAL SYSTEMS.

The GoP has laid the legislative groundwork for e-government, but systems and processes lag behind many of Panama's neighbors, including Colombia, Costa Rica, and Ecuador. Coordination between stakeholders and interoperability of existing systems have hindered better public service delivery.

A. Examine public service delivery at both the national and municipal level. Building on the work of the IADB and OECD, the international development community can more deeply evaluate digital public service delivery at both the national and municipal levels across core components of digital government. This scoping study should take into account the status of previous initiatives, such as MuNet, to provide a more timely and holistic assessment of the bottlenecks that remain.

B. Facilitate a mindset shift to e-government systems. In Panama, government and citizens alike are more comfortable with manual, paper based processes. According to a public sector interviewee, both public sector actors and citizens are used to analog certifications, like paper stamps, to validate official documents. As a result, both groups are often reluctant to embrace digital systems that may do away with traditional templates. The international development community can partner with the GoP, IADB, and other stakeholders to hold workshops and promote awareness-raising campaigns to help shift this mindset of both citizens and civil servants.

C. Support the GoP to build, use, and maintain interoperable digital government systems. With the Principles for Digital Development as foundational guidelines, the international development community can also advocate for interoperability across all administrative bodies of the government and digital government services. A public sector interviewee noted that while a shift to fully digitized point-to-point services is the goal, some processes have lagged behind. Selling a car in Panama involves three institutions: the tax authority, the municipal government, and the national transport office. If one of them is not connected to the e-service, in-person or paper-based transactions are still necessary to complete the process. The international development community should work with the Ministry of Labor, AIG, and other GoP actors to better define roles and responsibilities for implementation of public sector digitization projects. Government staff across the country will benefit from learning more about the importance of interoperable digital government systems to streamline operations and service provision. The international development community can also work with the GoP to develop strategic roadmaps for services like digital IDs.

D. Partner with regional and local organizations to promote better data for decision-making. Panamanian organizations like *GeoIndigena*, *Espacio Civico*, and others are leveraging data to improve the well-being of citizens and indigenous populations. However, poor coordination between the GoP and these organizations limits the usefulness of these real-time data initiatives. The international development community could explore partnerships with Panama based CSOs and the government to reduce bottlenecks in information exchange. The international development community could also explore partnerships with SERVIR and

Copernicus to use space data to work with GoP on geospatial data use, data availability, and processing for data-driven decision-making.

RELEVANT RESOURCES:

- Government influence on e-government adoption by citizens in Colombia: Empirical evidence in a Latin American context (PloS ONE, 2022)
- Digital Government Model (USAID, 2022)
- Seven Digital Government Transformation Trends & Best Practices
- How To: Create Digital ID for Inclusive Development (USAID, 2020)
- How To Secure Private Data Stored and Accessed in the Cloud (Digital Principles, 2022)
- Anti-bribery management systems (ISO, 2016)
- Case Study – National Democratic Institute Open Source Platforms (Digital Principles, 2022)

6. STRENGTHEN DEMOCRATIC PLURALISM THROUGH PROMOTING MORE TRANSPARENCY AND ACCESSIBILITY

A. Share lessons learned to shape more transparent government and inclusive rights-respecting digital regulation in the region. Panama's challenges in enshrining data protection, open government, and media freedom are not uncommon, especially in Central America. Stakeholders across the region may benefit from open dialogue to shape more inclusive regulations and public sector accountability. The international development community could host recurring virtual events to share lessons learned between regional digital government champions and successful ministries to move toward more transparent government in the region. In addition, the international development community could conduct regional workshops with national government lawmakers, legal advisors, and tech experts to scale inclusive, rights-respecting digital regulation. Partners may include regional representatives from data protection authorities like ANTAI, digital transformation agencies like AIG, and other government stakeholders, along with media associations and members of civil society.

B. Advocate for and support regional actors to follow through on open data commitments. Fifteen countries in Latin America and the Caribbean have joined the Open Government Partnership and published a series of open government action plans.[638] Panama, Honduras, Guatemala, Costa Rica, Ecuador, and others are each on their second, third, or fourth iterations.[639] However, notable anti-corruption and transparency commitments across Central America have either been dismantled, as in the case of El Salvador, Guatemala, and Honduras, or not fully embraced by public sector bodies, as in the case of Panama.[640] The international development community could build on the work of the OECD's Network on Open and Innovative Government in Latin America and the Caribbean, the IADB and Open Data Watch's Open Data workshops in Latin America, and work with partners like the Latin American Open Data Initiative to foster more inclusive, participatory, and accessible open data ecosystems. With upcoming elections, the international development community could also work with local civil society organizations, like *Espacio Civico*, to issue an open letter modeled off one issued by the Open Data Institute in 2017 to promote better access to candidate data.

638 "Open Government," United Nations, n.d., https://observatorioplanificacion.cepal.org/en/opengov.

639 United Nations, Open Government.

640 Benjamin N. Gedan, Santiago Canton, "Radical Transparency: The Last Hope for Fighting Corruption in Latin America," Georgetown University, Walsh School of Foreign Service, April 1, 2022, https://gjia.georgetown.edu/2022/04/01/radical-transparency-the-last-hope-for-fighting-corruption-in-latin-america%EF%BF%BC/.

7. BOLSTER SAFEGUARDS FOR JOURNALISTS TO PROTECT MEDIA FREEDOM

Panama ranks higher than other countries in the region in press freedom indices. However, judicial harassment has become more commonplace. This may lead to self-censorship and constrain the media's ability to actively monitor, audit, and ensure transparency from the GoP and other stakeholders.

A. Advocate for legal safeguards for media professionals. The lack of discrete, legal protections for journalists has led to a series of lawsuits with onerous fines that many journalists may be unable to afford. The international development community could consider a two-pronged approach to encourage more protections for journalists. For one, the international development community could promote the adoption of new, more progressive legislation by the GoP that enshrines the freedom of protection in the regulatory framework. At the same time, the international development community could design programs that provide direct legal support to journalists who have become targets of judicial harassment.

B. Facilitate information-sharing and best practices for advancing media freedom and investigative journalism. Judicial harassment in Panama seems to target investigations related to perceived corruption, whether it be permits-for-pay schemes or procurement irregularities. While journalists in Panama have not been targets of violence, their counterparts in other countries have, and several are in exile. Journalists throughout the region may benefit from sharing best practices for navigating these challenges while continuing to pursue more transparency. The international development community could hold regional or national workshops to train journalists on tools at their disposal to further their goals while operating in a closing civic space.

8. STRENGTHEN THE REGULATORY AND STRATEGIC FRAMEWORKS FOR THE DIGITAL ECONOMY

As captured in the DECA, the GoP's ambitious agenda to transform Panama into a regional hub for the digital economy has not allowed for a coordinated approach to developing and implementing regulatory and strategic frameworks for the digital economy. Notable examples of this challenge include (1) the lack of clarity in the delineation and definition of roles and responsibilities for the implementation of the *Panama Digital Hub Strategy* and (2) the gridlock around developing a legal framework that designates an authoritative figure with the responsibility to oversee the national payment system and that specifies rules for who can participate in the system.

A. Work with the National Center for Competitiveness (CNC) to champion the *Panama Digital Hub* Strategy and future policies, strategies, and regulations of the digital economy. The CNC has emerged as a champion for promoting Panama's digital economy, not least because it has effectively represented the interest of the private and public sectors. Led by Irvin Halman, the former General Administrator of Panama's AIG, the CNC holds consultative status with the GoP by helping to shape its digital economy policy agenda. The international development community can work with the CNC as a key stakeholder in developing the GoP's digital economy policies.

B. Build a Community of Practice (CoP) to facilitate the exchange of knowledge, experiences, and ideas that will inform the design of regulatory and strategic frameworks for issues related to the digital economy. The international development community can facilitate the establishment of a CoP composed of National Assembly members, representatives of GoP ministries such as MICI, SBP, the CNC, and FSPs. When it comes to issues related to financial sector reform, the international development community can partner

with the Financial Services Volunteer Corps (FSVC) to strengthen the capacity of the National Assembly to draft regulations to enact reforms in the financial sector. The FSVC is a not-for-profit, private-public partnership whose mission is to strengthen commercial banking systems, build central bank capabilities, and develop capital markets through the provision of technical assistance.

RELEVANT RESOURCES:

- E-Commerce and Digital Economy Program Year in Review 2020: Facilitating inclusive digital economies in challenging times (UNCTAD, 2021)
- Framing Policies for the Digital Economy (UNDP, 2018)

9. SUPPORT UPSKILLING INITIATIVES TO STRENGTHEN THE DIGITAL TALENT POOL

The DECA highlights some of the challenges that private sector companies face in filling positions that require digital skills.

A. Partner with academia and chambers of commerce to investigate supply and demand of digital talent by conducting a digital talent needs-based assessment. The international development community can collaborate with the U.S. Chamber of Commerce Foundation, members of the U.S. and Panamanian business and tech community, and education and workforce development partners to pilot the development of a talent pipeline management (TPM) framework. The TPM provides relevant stakeholders with strategies and tools to co-design talent supply chains that connect learners and workers to jobs and career advancement opportunities.

B. Engage Panamanian youth through educational programs to raise awareness about careers in the digital economy. The international development community can work with the City of Knowledge Foundation and the UTP to co-create a dialogue series that educates young Panamanians on STEM careers and other professional opportunities in the digital economy. Executives of U.S. and Panamanian tech companies can be invited as guest speakers to share their reflections on how to be best-positioned for a career in the digital economy. The series can be hosted at the Panama American Center, where Panamanian youth can also have the opportunity to learn about the State Department's various academic and cultural training programs.

RELEVANT RESOURCES:

- The Digitization of TVET and Skills System (ILO, 2020)
- The OECD Framework for Digital Talent and Skills in the Public Sector (OECD, 2020)

10. FACILITATE SYNERGIES BETWEEN PANAMA AND ITS NEIGHBORS TO IMPROVE CROSS-BORDER DIGITAL TRADE

One of the key findings from the DECA is that Panama is not able to fully capitalize on its position as a regional trade hub given the constraints it faces with implementing the full suite of digital trade mechanisms. Despite having in place a single window system, the exchange of a customer's declaration, certificate of origin, and sanitary and phyto-sanitary certificate cannot be completed online.

A. Support the GoP in establishing a National Trade Facilitation Committee (NTFC). As a World Trade Organization member that has accepted the Trade Facilitation Agreement (TFA), Panama has committed to establishing an NTFC to facilitate domestic coordination and implementation of the TFA. According to

the 2023 UN Global Survey on Digital and Sustainable Trade Facilitation, Panama has only partially implemented an NTFC or similar body.

B. Launch a regional trade forum to discuss ongoing efforts in implementing digital customs. The international development community can convene a regional trade forum to discuss a customs digital reform agenda. The forum can bring together representatives of agencies and authorities that participate in importation, exportation, and transit procedures in Panama, Honduras, El Salvador, Guatemala, and other countries in Central America.

RELEVANT RESOURCES:

- Structure and Role of the US National Trade Facilitation Committee (Department of State, 2018)
- Digital and Sustainable Trade Facilitation in Latin America and the Caribbean (United Nations Economic Commission for Latin America and the Caribbean, 2021)

11. PROMOTE A HUMAN-CENTERED AND INCLUSIVE APPROACH TO DEVELOPING THE DFS MARKET.

In Panama, there is a mismatch between how policymakers and FSPs perceive the financial needs and preferences of different customer segments and a customer's actual needs and preferences. The DFS market offers products that are not designed to meet the unique needs and preferences of customers. There is an immense opportunity to shift the design of DFS products in a manner that can help low-income households mitigate economic shocks and minimize the risks for irregular migration, ultimately building stronger pathways out of poverty.

A. Support the SBP in updating and implementing the Financial Inclusion Strategy. The SBP is developing a new financial inclusion strategy with the support of CAF. The international development community can help the SBP develop a financial inclusion monitoring system or a dashboard to collect and reflect their progress in regard to financial inclusion indicators, similar to what is being done in Honduras. The SBP is currently not collecting data from their MFIs and some of the larger cooperatives that reach the more rural low-income population. This information is critical to their narrative around financial inclusion. Data should be mapped and set up in a more comprehensive way with indicators that are more relevant and useful and including ways to use some of that data and trend analysis for the financial sector.

B. Shape DFS incentives in partnership with financial sector actors and GoP. USAID's 2019 FinTech Partnerships Playbook offers recommendations for engaging the private sector to strengthen digital finance ecosystems. It outlines different ways, or "plays," for engaging with donor roles and highlights implications for market dynamics, key performance indicators, and illustrative real-world examples. The plays that may have the greatest impact include:

   a. *Play No. 2: Apply market insights to product design. International development actors can foster collaboration between non-bank FSPs and FinTechs.* International development actors can explore how bringing together early stage FinTechs and FSPs in a pilot testing environment can enable FSPs to affordably and systematically develop and scale innovations.

   b. *Play No. 9: Build awareness and understanding of formal financial services among consumers and MSMEs.* The international development community can continue to design and deliver awareness campaigns on the benefits of DFS that leverage social media platforms.

RELEVANT RESOURCES:

- National Financial Inclusion Strategies: Current State of Practice (Alliance for Financial Inclusion, 2022)
- Enabling Women's Financial Inclusion through Data (IADB, 2019)
- FinTech Partnerships Playbook (USAID, 2019)

12. GUIDE STARTUPS THROUGH MATURATION PROCESS TO HELP THEM EXPAND INTO THE GLOBAL MARKET

Startup founders in Panama contend with a small domestic market size, limited access to finance, and both the services that BSOs offer, and their concentration in Panama City, thereby limiting how well rural startups can prosper without moving to the capital.

A. Partner with incubators to shape an entrepreneurship program linking startups with the international market. While Panama does offer local BSOs such as the CDS and the Innovation and Entrepreneurship Alliance (IEA) that help startups move from ideation to SME, few startups have expanded their networks beyond the country's domestic market. For example, Y Combinator has only accepted six Panamanian startups into its portfolio, largely due to the advocacy and initiative demonstrated by each startup. The international development community could foster partnerships with CKF and IEA and international BSOs and match local BSOs with US business accelerators to increase opportunities for Panamanian startups.

B. Partner with local and regional initiatives to decentralize and improve the quality of BSOs. The international development community could evaluate the smaller cities and peri-urban areas in Panama that may be able to support a vibrant tech ecosystem outside of Panama City. One pathway may be to first identify linkages between entrepreneurship and key aspects of Panama's economy, such as tourism and banking. The international development community may consider partnering with the Center for the Promotion of SMEs that has already launched a study on the quality of incubators in the region. Since academic institutions may be natural settings for nascent incubators, the international development community may consider building on the partnerships between the *Infoplazas* initiative and regional universities. To help improve the quality of BSO services, the international community could partner with regional initiatives such as the International Finance Corporation's Startup Catalyst, which helps local accelerators improve their seed funding and mentorship offerings. Lessons may also be drawn from the experiences of the Small Business Development Center (SBDC) and the Strengthening Entrepreneurship and Enterprise Development (SEED) program that support incubators in increasing the quality of their services.

C. Connect ProPanama with international initiatives to attract and development strategies to mobilize private investment. ProPanama—the GoP office responsible for the country's trade promotion agenda—and local startups are keen to attract more investment, but Panama's small market size presents a challenge. The international development community could connect ProPanama and other local initiatives with international organizations to facilitate more investment partnerships. One partner may be the Development Finance Corporation (DFC), which has not yet made such investments in Panama, but has supported entrepreneurship programs in other Latin American countries. DFC has invested in initiatives in Peru in 2023 to expand opportunities for female entrepreneurship, a region wide initiative "Pomona Impact Fund II LP" to help SMEs scale, and programs targeting women's entrepreneurship in Guatemala.

RELEVANT RESOURCES:

- Startup Acts: An emerging instrument to foster development to high growth (Investment Climate Reform Facility, 2021)
- Digital FDI Policies: Policies, Regulations, and Measures to Attract FDI in the Digital Economy (World Economic Forum, 2020)
- The Digital Transformation of SMEs (OECD, 2021)

13. STRENGTHEN THE COUNTRY'S CYBERSECURITY COMPETENCIES, CAPABILITIES, AND RESILIENCE

Panama's national cybersecurity capacity remains nascent due to the lack of a robust cybersecurity governance structure and low awareness and education.

A. Support actors in identifying and regulating the CII sectors and assets. Panama is globally known as a regional logistic and financial hub in which the cybersecurity capacity of service operators from the public and private sectors are not regulated, putting at risk essential services, such as the Panama Canal, the Tocumen Airport, and the financial sector. Critical infrastructure in other sectors, such as telecom, energy, and health, have not been identified or regulated. The AIG also has not defined a governance structure for CIIP. Under such a critical scenario, the international development community can provide guidance to the GoP and AIG with support from MITRE, CISA, NIST, by providing a methodology, lessons learned and other inputs to identify and regulate the country's critical infrastructure sectors and assets.

B. Work with the GoP and ASEP to integrate cybersecurity measures into the telecommunications regulatory framework. The GoP, through the telecommunications regulator, ASEP, is working on updating the entire telecommunications regulatory framework with the support of ITU's technical expertise and CAF's financial resources. Leveraging this need and Recommendation 14, the international development community can help contribute to integrating tailored cybersecurity measures into the telecommunications regulatory framework.

C. Work with stakeholders to launch a multi-sectoral working group to expedite the new cyber crime legislation. Two cyber crime bills are stuck in the National Assembly, but there is an urgent need, particularly from the financial sector, to enact new cyber crime legislation. The international development community can guide the GoP and other stakeholders in assembling a multi-sectoral working group to discuss and debate the conflicting aspects and expedite the legislative process.

D. Organize capacity-building activities for lawmakers, law enforcement officials, prosecutors, and judges. GoP authorities in charge of cyber crime investigation, prosecution, and trial must increase their knowledge of cyber crime and digital evidence collection. Lawmakers should also enhance their understanding of cyber crime and how it is regulated. The international development community could provide high-level capacity-building activities.

E. Partner with stakeholders to launch a comprehensive national cybersecurity awareness-raising program The cyberculture and awareness in Panama remain low; therefore, the international development community could develop a robust national level awareness-raising program targeting various demographics.

RELEVANT RESOURCES:

- CISA Cybersecurity Governance and Best Practices for Governance Structure Membership Analysis (CISA, 2023)
- State Cybersecurity Governance Case Studies (CISA, 2023)

- A Governance Framework for National Cybersecurity Strategies (ENISA, 2023)
- Enhancing the protection and cyber-resilience of critical information infrastructures (ITU, 2021)
- Cybersecurity Awareness-Raising: Peek into the ENISA-do-it-yourself Toolbox (ENISA, 2023)

14. LEVERAGE RELATIONSHIPS WITH INTERNATIONAL PARTNERS TO EXCHANGE CYBERSECURITY BEST PRACTICES AND LESSONS LEARNED AMONG GOVERNMENT ACTORS.

A. Explore partnerships with EU and regional cybersecurity programs to build GoP cybersecurity capacity. Panama and other countries in the region may benefit from an exchange of best practices for cybersecurity capacity-building for both the public and private sector. The international development community could work with regional initiatives, such as the Latin America and Caribbean Cyber Competence Centre (LAC4), to build both GoP and regional capacity. The Government of El Salvador recently signed an MOU with LAC4 to strengthen digital resilience and cybersecurity and promote government innovation in the country. In addition, the Organization of American States' Executive Secretariat of the Inter-American Committee Against Terrorism's cybersecurity program has built technical and policy capacity across 34 countries in the region since 2003.

RELEVANT RESOURCES:

- A Practical Guide for CSIRTS (OAS, 2023)
- National Cybersecurity Strategies: Lessons Learned and Reflections from the Americas and Other Regions (OAS, 2022)

Appendices

A. SELECT TECH STARTUPS IN PANAMA

TABLE 14: Select Tech Startups in Panama

NAME	MAIN ACTIVITIES
FinTech	
PayCaddy	Supports companies in Latin America in launching financial products through proprietary API.
Bitpoint	Facilitates crypto asset transactions in local currency in seven countries: Mexico, Dominican Republic, Panama, Guatemala, Ecuador, Peru, and Argentina.
Adelantos	Streamlines timely access to credit between USD 50 and USD 500 in less than 30 minutes.
Zenpli	Simplifies the identity authentication process through proprietary API.
E-Commerce	
Simplify	Digital marketing startup that supports website design and development, search engine optimization, pay-per-click advertising, social media marketing, and content creation.
Cuanto App	Personal finance management and payments startup allowing users to track expenses, create budgets, and facilitate peer-to-peer transactions through preexisting social media applications.
Boxit	Storage and logistics startup that offers on-demand durable storage boxes and allows users to schedule pickup, storage, and return delivery of belongings through a mobile app or website.
AtomChat	Offers a comprehensive chat solution for businesses to offer real-time messaging, voice and video calling, file-sharing, and other collaboration tools to customers. Enhances customer engagement, provides support, and fosters community interaction.
Wisy	Digital marketing platform to help businesses optimize their online presence through improving online profiles, managing and responding to customer reviews, social media management, and online advertising.
Hero	Leverages artificial intelligence to improve invoicing and bill solutions for businesses, including expense tracking, tax compliance, and customer management.
Property Tech	
Munily	Building and condominium management software startup offering property listing management, tenant screening, lease management, rent collection, maintenance tracking, and financial reporting.
Selina	Hospitality and accommodation startup that provides accommodation ranging from hostels, boutique hotels, to co-working spaces with a focus on digital nomads, remote workers, and travelers.

TABLE 14 (CONTINUED): Select Tech Startups in Panama

NAME	MAIN ACTIVITIES
Gig Economy	
LiberrApp	Startup that connects freelancers from a range of specialties, such as air conditioning maintenance, courier, plumber, electrician, driver, cleaner, beauty services or health, to customers through a single platform.
Muver	Transportation startup providing an app catering to women where users can order rides, schedule deliveries, and run errands.
Contactiza	Offers a marketplace platform connecting companies and independent construction professionals.
Data	
PanaData	Indexes public data released by the GoP on a single platform to facilitate public data research.
Degusta	Platform that provides information and reviews about food and dining experiences in Panama City.
Encuentra24	Online classified ads platform where users can buy, sell, rent, or trade a wide variety of goods and services. Operating across eight countries with two million active users.

B. DEFINITIONS

Definitions from the USAID DECA Toolkit unless otherwise mentioned.

Affordability: Whether a person can afford the cost of data relative to their income, measured as gigabytes (GBs) of data per percentage of monthly income. The Alliance for Affordable Internet (A4AI) uses a "1 for 2" measure for affordable internet. Affordable internet is where 1GB of mobile broadband data is priced at 2 percent or less of average monthly income.

Artificial Intelligence (AI): The science and technology of machines that perform activities normally thought to require human intelligence. One subset of AI is Machine Learning (ML), a technique in which computers "learn" to recognize patterns in existing data, creating systems that can be more flexible, responsive, and adaptable than previously possible. Some AI systems use computers to automatically make decisions, while others create recommendations for human decision-makers.

Blockchain: An example of a distributed ledger technology (DLT), which is a type of shared, peer-to-peer computer database that enables all network participants to agree on a set of facts or events without needing to rely on a single, centralized, or fully trusted intermediary party. Blockchains are the most common form of DLT, and require data on the "chain" to be structured in linked, sequential "blocks."

Civil Society Organization (CSO): Organizations including formal non-government organizations (NGOs) as well as formal and informal membership associations (labor unions, business and professional associations, farmers' organizations and cooperatives, and women's groups). CSOs articulate and represent the interests of their members, engage in analysis and advocacy, and conduct oversight of government actions and policies.

Cyber Hygiene: The practices and steps that users of computers and other devices take to maintain system health and improve online security. These practices are often part of a routine to ensure the safety of identity and other sensitive details that could be stolen or corrupted

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 non-repudiation.

Data Governance: Policies, strategies, frameworks, and practices that governments implement to regulate data collection, management, use, and sharing in the public and private sectors. This broad topic can include data privacy practices, data sovereignty, data stewardship roles and authorities, cross-border data flows, regulations on AI, and data infrastructure (e.g., open data portals and interoperability layers).

Data Privacy: The right of an individual or group to maintain control over and confidentiality of information about themselves. Data privacy can be at risk both from unintentional sharing and from undue or illegal gathering and use of data about an individual or a group.

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.

Digital Divide: The distinction between those who have access to the internet and can make use of digital communications services, and those who are excluded from these services. Multiple and overlapping digital divides 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 one another, engage in economic activity, and obtain access to 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 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 Financial Inclusion: The use of digital technology to reach financially excluded and underserved populations with a range of formal financial services suited to their needs, responsibly delivered to customers, and sustainable for providers.

Digital Financial Services (DFS)/FinTech: Financial services enabled by or delivered through digital technology (e.g., mobile phones, cards, the internet). DFS (e.g., payments, credit, insurance, savings, advisory) can be offered by a range of providers, from banks to a host of non-bank financial institutions, such as microfinance institutions, digital credit providers, payment providers, technology vendors, and electronic money issuers.

Digital Government: the use of digital technologies as an integrated part of government modernization strategies to create public value. Successfully navigating digital transformation requires more than adopting new applications; it requires a shift in processes and attitude toward agile and collaborative decision-making. USAID's digital government framework is built around three core functions: deliver, manage, and engage. The performance of digital government services depends on foundational elements such as change management, human capacity, legislation, policy, regulation, and infrastructure. Investment in these core components and foundational elements helps government bodies become more coordinated, efficient, resilient, proactive, and accountable.

Digital Identity: A set of attributes that uniquely describe an individual or entity. Digital identification (ID) systems often require registering individuals into a computerized database and providing certain credentials associated with each individual (e.g., birth certificates, identifying numbers, cards, digital certificates) as proof of identity. Digital ID systems sometimes use biometrics (fingerprints, iris scans, etc.) to identify individuals, but many advanced systems do not. Government actors can set up these systems to create foundational, national ID programs, and donors and NGOs can set them up to identify beneficiaries, e.g., for humanitarian assistance and service-delivery.

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, social, and political life. This may include competencies that are variously referred to as computer literacy, ICT literacy, information literacy, and media literacy.

Digital Payments: Payments initiated or received by electronic means. For an end user, these payments might be made through a text message, mobile application, website, or merchant-level point-of-sale device, such as a dongle or QR code. A financial institution—bank, switch, MFI, or payment service provider—might facilitate these payments to or from a range of instruments that could include: prepaid wallets (i.e., electronic money accounts), cards, transaction or bank accounts, and other instruments that serve as stores of value and permit payments.

Digital Repression: The use of digital tools and technology to suppress internet freedoms; includes five techniques: surveillance, censorship, social manipulation and harassment, internet shutdowns, and targeted persecution of online users. This term can include offline actions taken to penalize online speech (e.g., arrests, physical violence), as well as online actions that aim to suppress freedoms in online and offline spaces.

Digital Trade: The delivery of products and services over the internet by firms in any industry sector, and of associated products such as smartphones and internet-connected sensors.

Disinformation: False information that is deliberately created or disseminated with the express purpose of causing harm. Producers of disinformation typically have political, financial, psychological, or social motivations.

E-Commerce: The sale or purchase of goods or services, conducted over computer networks by methods specifically designed for the purpose of receiving or placing orders.

Human rights online: The fundamental rights and freedoms that individuals can exercise online,[641] as well as a respect for privacy and ownership of data. [642]

Information and Communications Technology (ICT): Diverse set of technological tools and resources used to transmit, store, create, share, or exchange information. These technological tools and resources include computers, the internet (websites, blogs and emails), live broadcasting technologies (radio, television and webcasting), recorded broadcasting technologies (podcasting, audio and video players, and storage devices), and telephony (fixed or mobile, satellite, video-conferencing).

Internet Freedom: The online exercise of human rights and fundamental freedoms regardless of frontiers or medium. Where internet freedom is respected, the same rights that people have offline are also protected online.

Internet Service Provider (ISP): An organization that delivers access to end users using both fixed-line and wireless technologies. Wireless ISPs (especially those in rural areas) often take advantage of low licensing and equipment costs by delivering service using unlicensed spectrum. ISPs range in size and scope from small local providers to providers with international and even global reach.

Interoperability: The ability of computer systems or software to exchange and make use of information from other systems. Interoperable data systems allow for data-sharing and reuse with common formats and definitions, and interoperable payment systems allow digital transfers of money between different financial service providers.

Internet Governance: The development and application by governments, the private sector, and civil society, in their respective roles, of shared principles, norms, rules, decision-making procedures, and programs that shape the evolution and use of the internet.

Last-Mile Connectivity: Where end users gain access to the internet using devices (mobile phones, laptops, tablets, computers) through local access networks.

Malinformation: The deliberate publication of private information for personal or private interest, as well as the deliberate manipulation of genuine content. Malinformation is based on reality but is used and disseminated to cause harm. An example is a report that reveals a person's sexual orientation without public interest or justification.

Media Literacy: The ability to gain access to, analyze, evaluate, create, and participate with messages in a variety of forms—from print to video to the internet. Media literacy builds an understanding of the role of media in society as well as essential skills of inquiry and self-expression needed by citizens of a democracy.

641 General Assembly resolution 2200A (XXI), "International Covenant on Civil and Political Rights," OHCHR, December 16, 1966, https://www.ohchr.org/en/instruments-mechanisms/instruments/international-covenant-civil-and-political-rights.

642 OHCHR, International Covenant on Civil and Political Rights.

Misinformation: Information that is false, but not intended to cause harm. For example, individuals who do not know a piece of information is false may spread it on social media in an attempt to be helpful. Disinformation, a type of misinformation, refers to misinformation that is spread with malicious intent.

Mobile Money: A technology that enables people to receive, store, and spend money using a mobile phone. Can also be referred to as a mobile wallet or e-money.

Mobile Network Operator (MNO): An entity that provides voice and data services primarily via wireless terrestrial networks. MNOs typically use licensed spectrum bands, which tend to deliver a higher quality, more reliable (and more cost-intensive) service because they are not shared.

Open Government Data: A philosophy—and increasingly a set of policies—that promotes transparency, accountability, and value creation by making government data available to all.

Radio Spectrum: Refers to the range of frequencies of electromagnetic radiation used to deliver radio transmissions. A critical function of telecommunications sector regulatory authorities is to designate specific frequency ranges (or bands) for different purposes, including telecommunications (but also for applications such as radio astronomy or other industrial uses). Some bands (e.g., Wi-Fi) are unlicensed, meaning that anyone can use them without seeking explicit prior permission.[643] Licensed spectrum requires users (e.g., commercial cellular networks or FM radio broadcasters) to secure a regulator's approval prior to use. Licenses are typically assigned through spectrum auctions, which aim to establish the economic value of spectrum which is a finite natural resource.

Universal Service Funds (USF): A mechanism designed to promote network infrastructure development in areas that commercial access providers deem uneconomical. Essentially established as subsidy programs, USFs are resourced through contributions drawn from the revenues of telecommunications operators. USF funds are often applied to help de-risk or otherwise complement network investments in underserved or unserved areas. In many cases, USFs target projects that serve schools, hospitals, and other anchor institutions where demand for services can be aggregated.

643 While permissions are not required for unlicensed spectrum use, users are typically limited to technical parameters (such as transmission power or antenna specifications).

C. METHODOLOGY

The Panama DECA included three components:

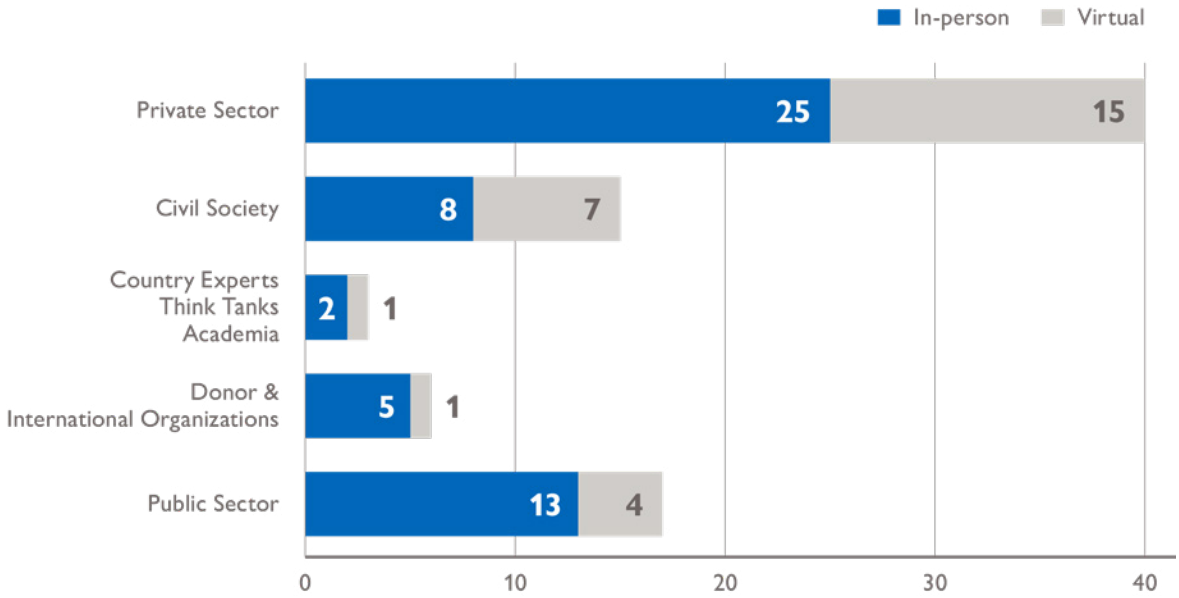
A. USG engagement: USG designated key Points of Contact (PoCs) who helped identify stakeholders; reviewed relevant documents during planning, interviews, and the analysis and report-writing stages; and helped organize three DECA presentations to socialize the DECA across various USG offices. This engagement was important for ensuring an appropriate mix of interviewees and for building the Research Team's understanding of USG priorities.

B. Desk research: The desk research used a standardized template organized around the three DECA pillars and included: 1) review of USG priority documents (e.g., strategic framework) and digitally relevant programming; 2) quantitative analysis of open-source data and indices to produce regional comparisons; and 3) internet research guided by high-level questions under each pillar. The Research Team shared the desk research with the USG PoCs before interviews and used it to inform interview guides.

C. Interviews: The Research Team collaborated with the USG to compile a list of target stakeholders across civil society, academia, international organizations, the private, and public sectors. The Research Team and USG networks secured initial interviews. Additional interviewees were added throughout the research process through referrals from completed interviews.

The Research Team conducted anywhere from 2–4 interviews per day with 4–5 interviews per day during in-person interviews. Most interviews were attended by at least two team members, with a lead interviewer and a notetaker. To best triangulate findings and to test different interview styles, team members rotated whom they paired with on interviews. Each interviewee was asked a general set of questions, which were developed before the interview phase, tailored to interviewees, and based on learnings from previous interviews. To ensure a diverse mix of interviewees, the Research Team evaluated the list of scheduled interviews and conducted additional outreach in an attempt to fill identified gaps. The graph below shows the 81 interviews by sector (informed by 37 female interviewees, and 70 male interviewees).

FIGURE 24: Panama DECA interviews, by sector



ANALYSIS

The Research Team conducted the preliminary analysis during the virtual interview phase. The team conducted weekly debriefs, which ensured that all team members were briefed on each interview and facilitated triangulation of emerging themes to be tested in subsequent interviews. Midway through the interviews, the team identified emerging themes based on these initial findings. Upon completing the interviews, the team convened to revisit these themes, confirmed their validity against interview notes, and organized the findings around the three DECA pillars outlined in this report.

LIMITATIONS

Research Team members were limited, to an extent, by their technical expertise. Team members were selected to provide coverage of key technical areas given the context and USG priorities and interests, particularly around human rights online and cybersecurity. This may introduce some bias—weighting the specializations of team members more heavily than areas such as digital government and digital financial services for example. Many interviewees were selected through USG and Research Team networks, which may have excluded stakeholders who are less comfortable engaging with USG representatives. Rather than rigorous qualitative methods (e.g., thematic coding), analysis of interview notes depended on Research Team members triangulating findings and attempting to balance thematic gaps by consulting technical experts and seeking additional interviewees.

RESEARCH TEAM

The Research Team was composed of digital development generalists and specialists with technical expertise in human rights online, cybersecurity, digital economy, and telecommunications law. Team members who were technical experts attended most interviews that were relevant to their expertise.

D. INTERVIEWEE LIST

COUNTRY OR SECTOR EXPERTS (ACADEMICS/THINK TANKS)	
1	Instituto Técnico Superior Especializado
2	Cybersecurity expert and university professor
PUBLIC SECTOR (NATIONAL AND LOCAL)	
3	Autoridad De La Micro Pequeña Y Mediana Empresa
4	El Instituto Nacional de Investigaciones Científicas Avanzadas en Tecnologías de Información y Comunicación
5	Autoridad Nacional de Transparencia y Acceso a la Información
6	AIG, Cybersecurity Director
7	Ombudsman
8	AIG, Telecommunications Director
9	CSIRT Panama
10	Deputy Juan Diego Vasquez
11	Ministerio De Comercio E Industrias
12	Ministerio De Comercio E Industrias, E-Commerce
13	Autoridad Nacional de los Servicios Públicos
14	Ministerio de. Trabajo y Desarrollo Laboral
15	Ombudsman, Women's Rights Protection
16	Former Prosecutor, Intellectual Property and Computer Security
17	Infoplazas AIP
DONORS, INTERNATIONAL NGOS, INTERNATIONAL DEVELOPMENT ORGANIZATIONS	
18	Inter American Development Bank
19	UNDP Accelerator Labs
20	UNHCR
21	WFP
CIVIL SOCIETY/MEDIA	
22	IPANDETEC
23	TVN Media
24	Internet Society
25	Espacio Civico
26	Leonardo Grispan, journalist
27	FOCO

D. INTERVIEWEE LIST (CONTINUED)

28	Fundación Comunidad DOJO
29	Raquel Robleda, journalist
30	Fundación Vida Segura
31	Infrastructure Transparency Initiative
32	Libertad Ciudadana
32	Libyan Organization for Information and Communication Technology
PRIVATE SECTOR	
33	LiberApp
34	PayCaddy
35	REDCAMIF
36	Consultia IT
37	MICROSERFIN
38	CAF
39	Bantismo
40	Credicorp
41	Superintendencia de Bancos
42	Banco Nacional de Panamá
43	National Competitiveness Council
44	Simplify
45	Panama Innovation Smart District / Green Valley Panama
46	ISACA
47	COSPAE
48	Asociación Bancaria de Panamá
49	Wigo
50	Chamber of Commerce
51	Transocean Network
52	Escala LATAM
53	AEI
54	Asociación Panameña de Ejecutivos de Empresas
55	Cámara de Comercio, Industrias y Agricultura de Chiriquí
56	Cámara de Comercio Digital y Blockchain

D. INTERVIEWEE LIST (CONTINUED)

57	ASAP
58	Torrecom
59	Muver
60	Digicel
61	Tigo
62	Ilan Shatz, entrepreneur
63	Fundación Ciudad del Saber
64	Centro Nacional de Competitividad

NOTE: 17 interviewees did not consent to be included in this list.

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