DIGITAL ECOSYSTEM COUNTRY ASSESSMENT (DECA)

Guatemala

MAY 2023

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ACKNOWLEDGMENTS

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ACRONYMS

	English	Spanish
AECID	Spanish Agency for International Development Cooperation	Agencia Española de Cooperación Internacional para el Desarrollo
AFG	Guatemalan FinTech Association	Asociación FinTech Guatemala
AGEXPORT	Guatemalan Association of Exporters	Asociación Guatemalteca de Exportadores
ASIES	Association for Research and Social Studies	Asociación para la Investigación y los Estudios Sociales
ATM	Automated Teller Machine	Cajero automático
BANGUAT	Guatemala's Central Bank	Banco Central de Guatemala
BANRURAL	Banco de Desarrollo Rural	Banco de Desarrollo Rural
CACIF	Committee for Agricultural, Commercial, Industrial and Financial Associations	Comité de Asociaciones Agrícolas, Comerciales, Industriales y Financieras
CCG	Guatemalan Chamber of Commerce	Cámara de Comercio de Guatemala
CDCS	USAID Country Development Cooperation Strategy	Estrategia de Cooperación para el Desarrollo del País de USAID
CDN	Content Delivery Networks	Redes de distribución de contenidos
CEO	Creating Economic Opportunities	Creando Oportunidades Económicas
CEPPS	Consortium for Elections and Political Process Strengthening (CEPPS)	Consorcio para el Fortalecimiento de Procesos Electorales y Políticos (CEPPS)
CERT	Computer Emergency Response Team	Equipo de Respuesta ante Emergencias Informáticas
CICIG	International Commission Against Impunity in Guatemala	Comisión Internacional Contra la Impunidad en Guatemala
CNE	National Education Council	Consejo Nacional de Educación
CONCIBER	National Cybersecurity Committee	Comité Nacional de Seguridad Cibernética
CONCYT	National Council on Science and Technology	Consejo Nacional de Ciencia y Tecnología
CONJUVE	National Youth Council	Consejo Nacional de la Juventud
CPJ	Committee to Protect Journalists	Comité para la Protección de los Periodistas
CSIRT	Computer Security Incident Response Team	Equipo de Respuesta ante Incidencias de Seguridad Informáticas
CSO	Civil Society Organizations	Organizaciones de la sociedad civil
DCCP	Digital Cybersecurity and Connectivity Partnership	Asociación de ciberseguridad y conectividad digital
DECA	Digital Ecosystem Country Assessment	Evaluación de país del ecosistema digital
DEMI	Indigenous Women's Ombudsman	Defensoría de la Mujer Indígena
DFC	U.S. International Development Finance Corporation	Corporación Financiera de Desarrollo Internacional de Estados Unidos
DFS	Digital Financial Services	Servicios financieros digitales

DGO	USAID Democracy and Governance Office	Oficina de Democracia y Gobernabilidad de USAID
DIAL	Digital Impact Alliance	Alianza de Impacto Digital
DO	Development Objective	Objetivo de desarrollo
DR-CAFTA	Dominican Republic-Central America Free Trade Agreement	Tratado de Libre Comercio República Dominicana-Centroamérica
EGDI	United Nations E-Government Development Index	Índice de desarrollo del gobierno electrónico de las Naciones Unidas
EGO	USAID Economic Growth Office	Oficina de Crecimiento Económico de USAID
ENIF	National Financial Inclusion Strategy	Estrategia Nacional de Inclusión Financiera
EPI	United Nations E-Participation Index	Índice de participación electrónica de las Naciones Unidas
FEDECOCAGUA	Federation of Cooperatives, Companies Peasant Associations of Guatemala	Federación de Cooperativas Agrícolas de Productores de Café de Guatemala
FODECYT	Scientific and Technological Development Fund	Fondo de Desarrollo Científico y Tecnológico
FONACYT	National Science and Technology Fund	Fondo Nacional de Ciencia y Tecnología
FONDETEL	Universal Service Fund	Fondo de Servicio Universal
FSP	Financial Service Provider	Proveedor de servicios financieros
FUNDESA	Foundation for the Development of Guatemala	Fundación para el Desarrollo de Guatemala
GAE	Commission on open and electronic government	Comisión de Gobierno Abierto y Electrónico
GCI	Global Cybersecurity Index	Índice de Ciberseguridad Global
GoG	Government of Guatemala	Gobierno de Guatemala
HEO	USAID Health and Education Office	Oficina de Salud y Educación de USAID
HEP+	USAID/Guatemala Health and Education Policy Plus	USAID/Guatemala Health and Education Policy Plus
HIVOS	Humanist Institute for Development Cooperation	Instituto Humanista de Cooperación al Desarrollo
IACHR	Inter-American Commission on Human Rights	Comisión Interamericana de Derechos Humanos
ICANN	Internet Corporation for Assigned Names and Numbers	Corporación de Internet para Nombres y Números Asignados
ICEFI	Central American Institute of Fiscal Studies	Instituto Centroamericano de Estudios Fiscales
ICT	Information and Communications Technology	Tecnologías de la información y la comunicación
IDB	Inter-American Development Bank	Banco Interamericano de Desarrollo
IGF	Internet Governance Forum	Foro de Gobernanza de Internet
INAP	National Institute of Public administration	Instituto Nacional de Administración Pública

INCIBE	National Institute for Cybersecurity	Instituto Nacional de Ciberseguridad
INTECAP	Technical Institute for Training and Productivity	Instituto Técnico de Capacitación y Productividad
IOM	International Organization for Migration	Organización Internacional para las Migraciones (OIM)
IoT	Internet of Things	Internet de las Cosas
ISOC	Internet Society Chapter of Guatemala	Capítulo de Internet Society de Guatemala
ISP	Internet Service Provider	Proveedor de servicios de Internet
IXP-GT	Internet Exchange Point Guatemala	Punto de Intercambio de Tráfico en Guatemala
LACNIC	Latin American and Caribbean Internet Addresses Registry	Registro de Direcciones de Internet de América Latina y el Caribe
LGT	General Law of Telecommunications	Ley General de Telecomunicaciones
MFI	Microfinance Institution	Institución de Microfinanzas
MINECO	Ministry of Economy	Ministerio de Economía
MINEDUC	Ministry of Education	Ministerio de Educación
MINEX	Ministry of Foreign Affairs	Ministerio de Relaciones Exteriores
MINFIN	Ministry of Public Finance	Ministerio de Finanzas Públicas
MINGOB	Ministry of the Interior	Ministerio de Gobernación
MINTRAB	Ministry of Labor and Social Welfare	Ministerio de Trabajo y Previsión Social
MNO	Mobile Network Operator	Operador de red móvil
MSPAS	Ministry of Public Health and Social Assistance	Ministerio de Salud Pública y Asistencia Social
MULTICYT	Multiple Support Fund for the National Science and Technology Plan	Fondo de Apoyo Múltiple al Plan Nacional de Ciencia y Tecnología
NBP	National Broadband Plan	Plan Nacional de Banda Ancha
NDI	National Democratic Institute	Instituto Nacional Democrático
NGO	Non-Governmental Organization	Organización no gubernamental
NIS	National Institutions Strengthening Project	Proyecto de Fortalecimiento de Instituciones Nacionales
OAS	Organization of American States	Organización de Estados Americanos
OGP	Open Government Partnership	Alianza para el Gobierno Abierto (AGA)
OJ	Judicial System	Organismo Judicial
PDH	Human Rights Ombudsman	Procuraduría de Derechos Humanos
PLANID	National Plan on Innovation and Development	Plan Nacional de Innovación y Desarrollo
PoC	Point of Contact	Punto de contacto
ProICT	Promoting American Approaches to ICT Policy and Regulation	Promoción de enfoques estadounidenses para la política y la regulación de las TIC
PRONACOM	National Competitiveness Program	Programa Nacional de Competitividad
PSP	Payment Service Provider	Proveedor de servicios de pago

SAT	Superintendency of Tax Administration	Superintendencia de Administracion Tributaria
SENACYT	National Secretariat of Science and Technology	Secretaría Nacional de Ciencia y Tecnología
SEPREM	Presidential Secretariat for Women	Secretaría Presidencial de la Mujer
SIB	Superintendency of Banks	Superintendencia de Bancos
SIT	Superintendency of Telecommunications	Superintendencia de Telecomunicaciones
STEM	Science, Technology, Engineering, and Mathematics	Ciencia, Tecnología, Ingeniería y Matemáticas
SVET	Secretary against Violence, Exploitation and Human Trafficking	Secretaría contra la Violencia, Explotación y Trata de Personas
TVWS	TV White Space	Espacio en blanco de la televisión
UDEFEGUA	Protection Unit for Women Defenders and Defenders of Rights Humans Guatemala	Unidad de Protección a Defensoras y Defensores de Derechos Humanos Guatemala
UNCTAD	United Nations Conference on Trade and Development	Conferencia de las Naciones Unidas sobre Comercio y Desarollo
UNESCO	United Nations Educational, Scientific and Cultural Organization	Organización de las Naciones Unidas para la Educación, la Ciencia y la Cultura
UNODC	United Nations Office on Drugs and Crime	Oficina de Drogas y Crimen de las Naciones Unidas
UNODC-ROPAN	United Nations Office on Drugs and Crime for Central America and the Caribbean	Oficina de las Naciones Unidas contra la Droga y el Delito para Centroamérica y el Caribe
USF	Universal Service Fund	Fondo de Servicio Universal
UTRAMS	Unified Technical Request and Mission Support	Solicitud técnica unificada y soporte de misión

Executive Summary

BACKGROUND

The U.S. Agency for International Development's (USAID's) Digital Strategy was launched 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.[1]

The Digital Ecosystem Country Assessment (DECA), a flagship initiative of the Digital Strategy, informs the development, design, and implementation of USAID's strategies, projects, and activities. The DECA looks at three pillars of a nation's digital ecosystem: (1) digital infrastructure and adoption; (2) digital society, rights, and governance; and (3) digital economy. The DECA aims to inform how USAID/Guatemala can understand, work with, and strengthen the country's digital ecosystem. The Guatemala DECA was informed by USAID/Guatemala's 2020-2025 Country Development Cooperation Strategy (CDCS),[2] the USAID/Guatemala Indigenous Peoples' Engagement Strategy,[3] USAID's Localization Framework for Guatemala (under Centroamérica Local initiative),[4] and the 2021 U.S. Strategy for Addressing the Root Causes of Migration.[5]

The USAID/Guatemala CDCS includes three Development Objectives:[6]

1. Partner with the Government of Guatemala and other stakeholders to increase economic prosperity, inclusion, and stability in areas with high irregular migration

2. Partner with the Government of Guatemala and other stakeholders to strengthen effective and accountable governance to improve quality of life and reduce irregular migration

3. Partner with the Government of Guatemala and other stakeholders to improve justice and security to reduce irregular migration

KEY FINDINGS

Digital transformation does not appear to be a high priority of the Government of Guatemala (GoG). The country's digital transformation agenda is, at the highest level, guided by the Digital Agenda (*Nación Digital 2016-2032*), a policy document created under the previous administration with the goal of reducing the digital

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1   "USAID Digital Strategy - USAID's Digital Strategy Overview." 2021. U.S. Agency for International Development. https://www.usaid.gov/usaid-digital-strategy.

2   "Country Development Cooperation Strategy (CDCS) - Guatemala." 2021. U.S. Agency for International Development. https://www.usaid.gov/guatemala/approach/country-development-cooperation-strategy.

3   "INDIGENOUS PEOPLES' ENGAGEMENT STRATEGY." n.d. U.S. Agency for International Development. December 8, 2022. https://www.usaid.gov/sites/default/files/2022-05/USAID_Guatemalas_Indigenous_Peoples_Engagement_Strategy.pdf .

4   "Centroamérica Local Guatemala Factsheet." 2021. U.S. Agency for International Development. https://www.usaid.gov/sites/default/files/2022-05/English_-_Fact_Sheet_-_CAL.pdf.

5   "U.S. STRATEGY FOR ADDRESSING THE ROOT CAUSES OF MIGRATION IN CENTRAL AMERICA." 2021. The White House. https://www.whitehouse.gov/wp-content/uploads/2021/07/Root-Causes-Strategy.pdf

6   "Country Development Cooperation Strategy (CDCS) - Guatemala." 2021. U.S. Agency for International Development. https://www.usaid.gov/guatemala/approach/country-development-cooperation-strategy.

divide through improved digital products and services in five main areas: education, health, security, economic development, and transparency.[7]

Guatemala does not have a central strategy or policy for the digitalization of government services or systems. However, the recently (2021) approved Law for the Simplification of Requirements and Administrative Procedures (*Ley Antitrámites*) applies to all government entities and aims to advance government administrative management through the digitalization of procedures and forms.[8] The goal is to enable citizens and businesses to save time and resources through streamlined digital government services. Guatemala ranks 121 out of 193 countries on the United Nations E-Government Development Index and 112 on the E-Participation Index, placing it behind most of its Central American neighbors.[9]

While Guatemala is home to relatively high network coverage, gaps in internet use persist and innovative solutions face regulatory barriers. In 2021, 51 percent of the population in Guatemala was covered by a mobile broadband network but was not yet using mobile internet.[10] One of the key drivers of this usage gap is low affordability. Broadband internet in Guatemala is less affordable than in almost all countries in Latin America. The private sector leads initiatives that explore the use of alternative technologies like TV White Space (TVWS) to bring affordable access to hard to reach areas. However, gaps in implementation of the regulatory framework sometimes undermines the progress of these innovative initiatives.

The digital divide persists across gender, geography, income, education and literacy, and ethnicity, and was highlighted and exacerbated by the COVID-19 pandemic. With mobile broadband being the main way Guatemalans access the internet, the top barriers to mobile internet use in Guatemala for both women and men are reported by GSMA in 2021[11] to be safety and security, literacy and skills, and affordability.[12] In 2021, the greatest barrier to mobile internet adoption for urban Guatemalans was safety and security while the greatest barrier for Guatemalans living in rural areas was literacy and skills.[13] Nine percent more women than men report that handset cost is a major reason they do not use the internet and four percent more women than men report information security as a key barrier. Women in Guatemala are 11 percent less likely to use mobile internet and also 11 percent less likely to own a smartphone than men.[14] When women are made aware of the potential economic and social opportunities provided by the internet, they make great efforts to budget for internet access. These gaps widen when gender intersects with Indigeneity. Indigenous households, especially those headed by women tend to be less economically stable and therefore less able to prioritize internet access given its high cost in Guatemala.[15]

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7   *Agenda Nación Digital 2016-2032* (Digital Nation 2016-2032). https://latinno.net/en/case/10165/.

8   Simplification Law, June 14, 2022, https://transparencia.gob.gt/wp-content/uploads/DECRETO-NU%CC%81MERO-5-2021.pdf

9   "E-Government Development Index (EGDI)", United Nations, May 12, 2022, https://publicadministration.un.org/egovkb/en-us/About/Overview/-E-Government-Development-Index

10   The Mobile Economy Latin America 2021, GSMA. July 22, 2022. https://www.gsma.com/mobileeconomy/wp-content/uploads/2021/11/GSMA_ME_LATAM_2021.pdf

11   The GSMA is a global organization that unifies the mobile ecosystem to discover, develop and deliver innovation that is foundational to positive business environments and societal change. They consider themselves as representatives of the Representing the worldwide mobile communications industry

12   GSMA defines safety and security as: concerns among citizens about the negative aspects and risks of the internet, such as harmful content, harassment, fraud and online security.

13   Delaporte, Anne, and Kalvin Bahia. "The State of Mobile Internet Connectivity Report 2021 - Mobile for Development." GSMA, September 2021. https://www.gsma.com/r/somic-2021/.

14   "GSMA Connected Women - The Mobile Gender Gap Report 2021." 2021. GSMA. https://www.gsma.com/r/wp-content/uploads/2021/06/The-Mobile-Gender-Gap-Report-2021.pdf.

15   "Indigenous Latin America in the twenty first century." World Bank. 2017. https://documents.worldbank.org/en/publication/documents-reports/documentdetail/145891467991974540/indigenous-latin-america-in-the-twenty-first-century-the-first-decade.

Digital rights are insufficiently protected and disinformation and harassment are present in the online space. Guatemala has neither a comprehensive data protection law nor any formal protections for freedom of expression online. Gaps in the policy and regulatory framework for digital rights are paired with an online space that is vulnerable to the spread of disinformation, in particular by political party sponsored "net centers".[16] Procedures to investigate online crimes such as fraud, harassment, and extortion do not exist. Few civil society organizations work to protect digital rights and counter disinformation and many lack the digital skills to amplify and protect their online presence.

Over the last decade, the GoG adopted long-term policies to support the development of the digital economy including the National Entrepreneurship Policy and the National Financial Inclusion Strategy. Progress is unclear, but data show that there has been some impact on financial inclusion. Despite remaining low relative to the region (and the globe), the percentage of financially included Guatemalans increased in recent years. In terms of digital financial inclusion progress has been far less impressive with only two percent of Guatemalans reporting having a mobile money account.[17] While gender and geographical divides exist in terms of digital financial inclusion, Guatemala leads the region with the smallest of both gaps. The key drivers of the country's low levels of digital financial inclusion, especially in rural areas, include internet connectivity and use gaps, insufficient banking infrastructure, lack of local relevance in design elements of digital financial products, and low levels of digital and financial literacy.

Although in its early days, there is unprecedented growth in Guatemala's startup ecosystem, specifically in FinTech. The FinTech industry more than quadrupled in size between 2017 and 2021, expanding at an annual growth rate of 54 percent.[18] Out of the country's 47 FinTechs, 21 percent provide remittances and mobile wallet services and 19 percent offer digital credit accounts.[19] This speaks to the potential opportunity for greater digital financial inclusion in remittances as remittances contribute to 18 percent of GDP.[20] Guatemala's digital economy faces a gap that may impact this impressive growth—the mismatch in the supply and demand of digital talent. The talent coming out of Guatemala's universities is insufficient in both volume and technical skills demanded by the growing tech startup sector and by the private sector more broadly. There is untapped potential in women and girls as currently science, technology, engineering, and math (STEM) fields are largely comprised of males due to cultural and structural barriers. Only 5 percent of women attained degrees in STEM compared to 17 percent of men.[21] Indigenous Peoples are also largely missing from Guatemala's digital talent pool due to geographic limitations on access to IT education and employment opportunities (they often live in communities far from universities and training centers).[22]

16   "Report: "Bots, netcenters and the fight against impunity." 2019. CICIG. https://www.cicig.org/statement-2019/bots-netcenters-and-the-fight-against-impunity/?lang=en.

17   "The Global Findex Database 2021: Financial Inclusion, Digital Payments, and Resilience in the Age of COVID-19." 2021. World Bank. https://globalfindex.worldbank.org/.

18   "Panorama FinTech GT 2021." Guatemala's FinTech Association, 2021. https://www.guatemalaFinTech.com/.

19   "*El sector FinTech de Guatemala dice manos a la obra*," Guatemala's FinTech Association, 2021. https://www.guatemalaFinTech.com/post/el-sector-FinTech-de-guatemala-dice-manos-a-la-obra.

20   "Remittances Data: Remittance inflows," Global Knowledge Partnership on Migration and Development (KNOMAD), July 3, 2022. https://www.knomad.org/data/remittances

21   "Science, Technology and Innovation: Guatemala," UNESCO Institute of Statistics, October 17, 2022. http://uis.unesco.org/en/country/gt?theme=science-technology-and-innovation

22   "Guatemala: Icefi presenta estudios base para proponer políticas públicas de empoderamiento económico para las mujeres." 2021. https://mail.icefi.org/comunicados/guatemala-icefi-presenta-estudios-base-para-proponer-politicas-publicas-de.

This report makes a total of nine recommendations for the international development community covering topics across the three DECA pillars. Recommendations support international development actors to achieve development objectives through building on current work, initiating new strategic partnerships, and planning future activities. All of the DECA recommendations are detailed with considerations for the inclusion of women and girls, youth, and Indigenous peoples. It is critical that as international development actors consider programming that uses or supports elements of the digital ecosystem that they do so without deepening existing digital divides. The DECA recommendations are listed below:

1. Support the expansion of last-mile connectivity by coordinating digital connectivity pilots

2. Convene multi-stakeholder discussions to refine and implement telecom policy and regulation

3. Build on current efforts that leverage digital technologies to improve public service delivery

4. Promote the resilience of civil society and media through strengthened policy and capacity that counters disinformation

5. Enable last-mile digital financial inclusion through public and private sector partnerships including using remittances as an entry-point

6. Support the growth of the tech startup ecosystem through the creation of innovation hubs

7. Support financial regulatory efforts for the sustained enforcement of *Ley Antitrámites*

8. Promote the mainstreaming ICT skills and digital literacy at all educational levels with an inclusive, market-driven approach

9. Build more robust cybersecurity policy, capacity, and awareness

While the DECA was not designed with the intention of making recommendations directly to the GoG, the research revealed the need for various policy level changes and for policy implementation support in order for the country to fully realize the potential of its digital ecosystem. The final section of the report details elements of the DECA recommendations that are relevant for the GoG. Topics include the need for modernized telecommunications policy and regulation that promotes transparency and competition, promoting best practices for using digital technologies in public service delivery, updating the national financial inclusion strategy, and building cybersecurity capacity within the government. (See Appendix A for a detailed list of GoG entities.)

ROADMAP FOR THE REPORT

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

DECA Findings presents key findings on Guatemala'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 outline how the international development community and the GoG can leverage and support the 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 strengthen the openness, inclusiveness, and security of country digital ecosystems.[23] The Digital Strategy and the DECA are part of USAID's holistic approach to helping achieve the Sustainable Development Goals (SDGs).[24] As part of the Digital Strategy implementation, the DECA examines three broad areas to identify the opportunities and challenges in a country's digital ecosystem:

- Digital Infrastructure and Adoption
- Digital Society, Rights, and Governance
- Digital Economy

> **KEY TERMS | BOX 1:**
> ## What is a 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 access services, engage with each other, and pursue economic opportunities.

The Guatemala DECA took place between October 2021 and October 2022. It included desk research, consultations with USAID/Guatemala and eight weeks of virtual interviews. A total of 76 interviews were conducted with stakeholders from civil society, academia, the private and public sectors, and international development organizations as well as five focus group discussions with a total of 33 USAID/Guatemala project participants. Eighteen participants were women, they ranged in age from 16 to 67 years old, roughly half of whom identified as being from an Indigenous community.

The DECA is intended to be a rapid assessment of opportunities and challenges tailored to USAID's programmatic priorities, rather than an authoritative source on the country's digital ecosystem, and thus may not cover all of USAID/Guatemala's program offices and projects in-depth.

FIGURE 1. USAID's Digital Ecosystem Framework
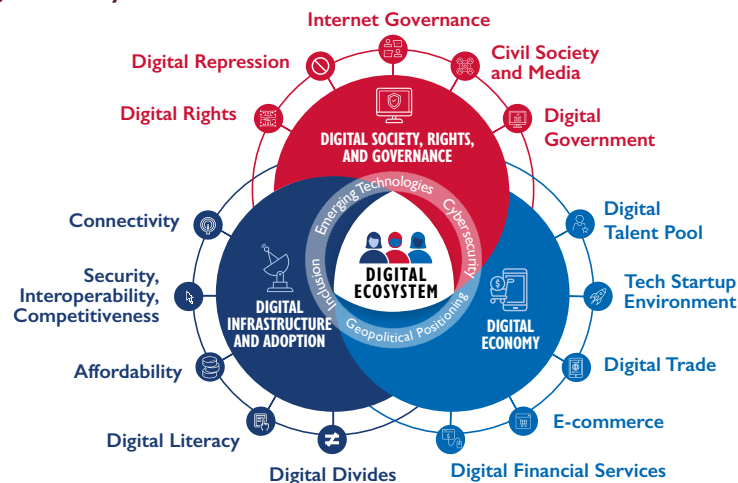
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23   "USAID Digital Strategy - USAID's Digital Strategy Overview." 2021. U.S. Agency for International Development. https://www.usaid.gov/usaid-digital-strategy.

24   "THE 17 GOALS | Sustainable Development." n.d. Sustainable Development Goals. December 14, 2022. https://sdgs.un.org/goals.

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 telecom 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

- Challenges to policy implementation hampers inclusive expansion of Guatemala's connectivity infrastructure.
- The legal, policy, and regulatory environment for telecommunications faces gaps in terms of capacity, transparency and accountability.
- Some innovative solutions and business models led by civil society, international cooperation organizations, and the private sector exist for last-mile connectivity, but they are challenged by market and regulatory inefficiencies.
- The digital divide in Guatemala has several and converging dimensions. Key drivers include: geography, gender, and ethnicity with affordability of internet and devices, low digital literacy, and gaps in connectivity coverage.

RELEVANT RECOMMENDATIONS

- Support the expansion of last-mile connectivity by coordinating digital connectivity pilots
- Convene multi-stakeholder discussions to help refine and implement telecom policy and regulation
- Promote the mainstreaming of ICT skills and digital literacy at all educational levels with an inclusive, market-driven approach *(cross-cutting)*
- Build more robust cybersecurity policy, capacity, and awareness *(cross-cutting)*

INTRODUCTION

Digital infrastructure is foundational for inclusive adoption and use of information and communication technologies as tools for creating social and economic value. The availability of digital infrastructure depends on the strength of institutions to promote private investment and regulate the telecommunications market in order to deploy updated infrastructure with affordable and accessible service. Guatemala's digital infrastructure, in particular mobile broadband, enables relatively high coverage in that it provides 95 percent of the population with at least 3G coverage. However, when it comes to individuals using the internet, only 17 percent of Guatemalans have an active mobile broadband subscription and only 50 percent use the internet with a five percentage point gender gap.[25] These statistics tell the story of digital infrastructure and adoption in Guatemala; one of relatively low adoption and digital divides. This section details the key gaps in Guatemala's enabling environment that prevent broader and more inclusive internet adoption and use, driven by a lack of affordability and regulatory shortcomings.

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25   "Digital Development Dashboard", International Telecommunication Union ITU, May 22, 2022, https://www.itu.int/en/ITU-D/Statistics/Dashboards/Pages/Digital-Development.aspx

FIGURE 2. A quick introduction to digital connectivity

The term broadband commonly refers to high-speed internet access that is always on. Broadband can be fixed as well as mobile.

Broadband

Fixed broadband provides a connection to an unmoving location and is cheaper to use than mobile broadband once installed.

Fixed

Mobile broadband is typically delivered over a wireless mobile phone network (2G, 3G, 4G, 5G) and typically requires SIM cards to operate on mobile phones, tablets, or other devices.

Mobile

Wireline

Wireless Broadband

Mobile Terrestrial

3G, 4G, and 5G are succeeding generations of mobile broadband network technology - a higher number reflects more advanced network capabilities with higher speed and capacity (more users and devices).

Mobile Satellite

Mobile satellite uses one or more communications satellites for use with mobile and portable wireless handsets.

Cable modem

Cable modem service enables cable operators to provide broadband using the same coaxial cables that deliver pictures and sound to your TV set.

Digital Subscriber Line (DSL)

DSL transmits data over traditional copper telephone lines already installed to homes and businesses.

Fiber to the Home/ Office

Fiber-optic technology carries data using pulses of light through transparent glass fibers about the diameter of a human hair. Fiber transmits data much faster than DSL or cable modem speeds.

Terrestrial (WiFi, TVWS, Microwave)

Wireless terrestrial broadband connects a home or business using technology such as radio links, microwave, or TV White Space. Access is often delivered from a network node to a high-gain antenna mounted on the exterior of the end-user premises.

Fixed Satellite

Fixed satellite uses a satellite dish to connect a ground-based gateway station via one or more communications satellites.

Fixed		**Mobile**	
+	**−**	**+**	**−**
Pros	**Cons**	**Pros**	**Cons**
Lower data costs	Service tied to single location	Portable – allows for user to roam freely	Requires phone number
Faster speed and greater reliability	User must be in coverage area of access point	Convenient	Reliability
		Always connected	Bandwidth capacity constraints
			Higher data cost

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 GOVERNMENT COMMITMENT TO DIGITAL DEVELOPMENT

FOUNDATIONAL LAWS, INSTITUTIONAL MANDATES, AND KEY POLICIES

The main legal framework for the telecommunications market is the Law of Telecommunications, which was enacted in 1996. The law has not been updated since its inception; it does not encourage infrastructure expansion or provide a sound legal framework for ensuring market competition. Furthermore, the law does not mention internet or broadband as it was created at a time when telephone networks were the dominant form of telecommunications.

The 1996 legal framework is paired with similarly dated institutional mandates for key public entities in the telecommunications sector. The regulator, *Superintendencia de Telecomunicaciones* (SIT), is responsible for spectrum management but, SIT does not have a legal mandate to regulate quality of service or performance of telecommunication services providers. SIT is also not legally defined as an independent regulator and is overseen by the Vice Ministry of Telecommunications. FONDETEL, the Universal Service Fund (USF) does not have the authority to expand internet access (see Key Terms Box 2 for an explanation of USF). FONDETEL is legally limited to promoting telephony projects and it does not have any legal function related to internet access.

> 📖 **KEY TERMS | BOX 2:** Last-Mile Connectivity and Universal Services Fund
>
> A Universal Service Fund (USF)[26] is 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 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.

FONDETEL is supposed to play the role of Guatemala's Universal Service Fund (USF). However, the fund is not functioning as intended.[27] A legal reform aimed at the elimination of FONDETEL was presented for approval in the Congress with justifications related to its low utility and cost.

In 2017, the President of Guatemala adopted and published a digital agenda, *Nación Digital 2016-2032*, aimed at increasing the number of internet users and improving the availability and quality of digital products and services in five areas: education, health, security, economic development, and transparency.[28] The plan lacks specificity in terms of detailing an actionable implementation plan and, while it recognizes the importance of a National Broadband Plan; there is no guidance or strategy for developing or acting on the plan.

> **BOX 1: The National Broadband Plan**
>
> The Broadband Commission for Sustainable Development pointed out that a well-formed national broadband plan is a country's blueprint for addressing and reducing digital inequality.[29] In its latest Affordability Report, the Alliance for Affordable Internet (A4AI) details the linkage between high-quality national broadband plans and progress toward affordability.[30]

26   "Survey of universal service funds." 2016. GSMA. https://www.gsma.com/publicpolicy/wp-content/uploads/2016/09/GSMA2013_Report_SurveyOfUniversalServiceFunds_KeyFindings.pdf.

27   Mobile network operator, interview by DECA Team, February 2022.

28   *Agenda Nación Digital 2016-2032* (Digital Nation 2016-2032). https://web.archive.org/web/20220513144850/https://1e8q3q16vyc81g8l3h3md6q5f5e-wpengine.netdna-ssl.com/wp-content/uploads/2018/04/1.-Agenda-Nacio%CC%81n-Digital-2017.pdf.

29   "Manifiesto 2020- Global Goal of Universal Connectivity", Broadband Commision for Sustainable Development ITU/UNESCO, May 26, 2022, https://www.broadbandcommission.org/manifesto/

30   "Affordability report 2021", Alliance for Affordable Internet, May 26, 2022, https://a4ai.org/report/2021-affordability-report/

> **BOX 1: The National Broadband Plan (continued)**
>
> According to the Inter-American Development Bank (IDB), a good National Broadband Plan (NBP) is multi-year with clear, ambitious, and achievable policy-related commitments and quantifiable targets, a focus on marginalized groups, supply-side interventions, competition policies for the telecom market, efficient use of spectrum, demand-stimulation activities, and an effective plan for monitoring and evaluation.[31]

CHALLENGES TO COMPETITION AND CONSUMER PROTECTION

The telecommunications market in Guatemala has only two mobile operators. Millicom-Tigo, which held 52 percent of the mobile market in the first half of 2020 and *América Móvil*, which held 48 percent by operating Claro Guatemala and *Telecomunicaciones de Guatemala* (Telgua).[32] The institutional and legal framework in Guatemala lacks competition regulation, which produces stagnation in the telecommunications market.

A report from CEPAL expresses major concern over this situation, reporting that the SIT does not have a legal mandate to regulate competition nor is there a government agency designated to do so.[33] A World Bank report classifies Guatemala as having high facilitation factors for cartelization and low development of anti-cartel tools and institutions. In this context, competitors can agree to fix prices, prevent smaller competitors from accessing certain market segments, or undermine the performance of the market by inhibiting the entry of high productivity firms and there are no legal instruments to deter or sanction these practices. Moreover, "de facto impunity for anticompetitive practices prevails" due to the lack of legal capability to prosecute anti-competitive agreements.[34]

Interviewees representing a wide range of stakeholders echoed sentiments about the monopolistic nature of the telecom market in Guatemala and the negative impact it has on the deployment of new investments, innovative solutions, and quality and reach of service.[35] An interviewee from civil society used the word *status quo* while mentioning that the current legal framework does not promote efficiency nor accountability and the "big fish" do not want this to change.[36] This sentiment was shared when another interviewee noted that this is a duopoly affecting competition, causing the availability of 3G, 4G, and 5G to lag, and perpetuating high costs.[37] In this context, an interviewee from the Congress stated that an initiative aimed at enforcing the provision of connectivity for rural schools in an attempt to close the digital gap was hampered by the "monopoly", which has considerable power in the market.[38]

There is also a lack of consumer protection regulation. This affects practical issues such as the need to change mobile operators due to the non-existence of number portability. Regulations regarding quality of service do not exist within the functions of the SIT.[39] An interviewee from the Congress stated that an initiative aimed

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31   "Development of national broadband plans in Latin America and the Caribbean", IADB, 2021, https://publications.iadb.org/publications/english/document/Development-of-National-Broadband-Plans-in-Latin-America-and-the-Caribbean.pdf

32   "Spotlight: The status of Guatemala's telecom sector", Bnamericas, December 2020, https://www.bnamericas.com/en/features/spotlight-the-status-of-guatemalas-telecom-sector

33   "*Competencia y regulación en las telecomunicaciones: el caso de Guatemala*", CEPAL, March 2007, https://www.cepal.org/sites/default/files/publication/files/4998/S0700168_es.pdf.

34   "Fixing Markets, Not Prices: Policy Options to Tackle Economic Cartels in Latin America and the Caribbean", World Bank, June 30, 2021, https://openknowledge.worldbank.org/handle/10986/35985.PDF

35   Manager from an international technology company, interview by DECA Team, January 2022.

36   International organization, interview by DECA Team, January 2022.

37   IXP Guatemala, interview by DECA Team, January 2022.

38   Member of Congress, interview by DECA Team, January 2022.

39   Government, interview by DECA Team, January 2022.

at creating a legal framework that defends the rights of consumers is being studied. However, there are concerns about opposition from some companies.[40]

1.2 THE TRIALS OF BROADBAND INFRASTRUCTURE AND AFFORDABILITY

Guatemala is home to relatively high network coverage, its connectivity infrastructure lacks important enabling elements for building inclusive and secure access to and use of digital technologies. Missing elements include low fixed broadband penetration, inefficient spectrum management, insufficient bandwidth availability, and low affordability of internet services and devices.[41] Guatemala scores at the bottom of the Affordability Driver Index ranked 61 out of 72 countries.[42] GSMA's Mobile Connectivity Index classifies Guatemala as a "transitioner",[43] which is in line with its regional neighbors – Belize, El Salvador, Honduras, and Nicaragua.[44]

THE FIXED AND MOBILE BROADBAND LANDSCAPE

Telecom infrastructure development in Guatemala has been undermined by years of underinvestment. As a result, it has one of the lowest fixed-line teledensities in Latin America. In many rural areas there is no fixed-line access (see Figure 3 showing the Guatemala internet transmission network overlaid with population density).[45] Telecom infrastructure in Guatemala is served by five submarine cables and two new submarine cables are due for completion in 2022 (figure 3).[46]

Most Guatemalans rely on mobile broadband due to the low penetration of fixed broadband. Fixed broadband internet subscriptions are negligible at only 3 percent (see also figure 4 below).[47] However, there is relatively high mobile broadband coverage with 86 percent 4G coverage, 95 percent 3G coverage, and 100 percent 2G coverage. Figure 3 shows the 2G, 3G, and 4G coverage of the two major mobile broadband providers (*Tigo* and *Claro*), revealing better coverage in the Pacific Lowlands and the weakest coverage in the Northern Lowlands, parts of the Western Highlands, and in the Caribbean region. 5G connectivity services were launched by Claro and TIGO in July 2022.[48] One of the main barriers to efficient 5G and 4G rollout in Guatemala is the regulator's backlog of clearing and

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40   Member of Congress, interview by DECA Team, January 2022.

41   "Affordability Report Data", Alliance for Affordable Internet, May 22, 2022, https://a4ai.org/affordability-report/data/?_year=2021&indicator=A13&country=GTM and Klaus Schwab, "The Global Competitiveness Report 2019", World Economic Forum, May 22, 2022, https://www3.weforum.org/docs/WEF_TheGlobalCompetitivenessReport2019.pdf, 252.

42   "Affordability Drivers Index", Alliance for Affordable Internet, June 29, 2022,https://adi.a4ai.org/affordability-report/data/?_year=2021&indicator=INDEX

43   GSMA's Mobile Connectivity Index scores countries across four metrics: which scores countries based on the availability of high performing mobile internet network coverage, availability of affordable mobile devices and services, consumer skills and awareness, and availability of secure online content and accessible services.

44   According to GSMA's country clusters, scoring about 50 in at least two enablers: infrastructure, affordability, consumer readiness, content, and services. GSMA clusters: Leaders (score about 75); Advanced (score above 65); Transitioners (score above 50); Emerging (score above 35); Discoverers (score below 35). "The GSMA Mobile Connectivity Index", GSMA, May 22, 2022, https://www.mobileconnectivityindex.com/#year=2019&secondaryMenu=about&id=methodologydatasources

45   "Conecta Guate Program Advancing Despite Pandemic", Developing Telecoms, May 14, 2021, https://developingtelecoms.com/telecom-business/market-reports-with-buddecom/11145-conecta-guate-program-advancing-despite-pandemic.html

46   "Guatemala Telecoms Market Report", Budde, December 7, 2021, https://www.budde.com.au/Research/Guatemala-Telecoms-Mobile-and-Broadband-Statistics-and-Analyses

47   Klaus Schwab, "The Global Competitiveness Report 2019", World Economic Forum, May 22, 2022, https://www3.weforum.org/docs/WEF_TheGlobalCompetitivenessReport2019.pdf

48   "Claro Guatemala launches 5G in all 22 departments", Telegeography, July 27,2022, https://www.commsupdate.com/articles/2022/07/22/claro-guatemala-launches-5g-in-all-22-departments/ and "Todo lo que necesitas saber de 5G", TIGO Guatemala, July 27,2022, https://ayuda.tigo.com.gt/hc/es/articles/7449958379155-Todo-lo-que-necesitas-saber-de-5G-

optimizing spectrum. Claro's 5G spectrum band has not been disclosed; Claro is able to use portions of spectrum that have been granted for "the provision of any type of telecommunications service", which expire in 2033.[49]

FIGURE 3. Fiber broadband infrastructure by population density[50]
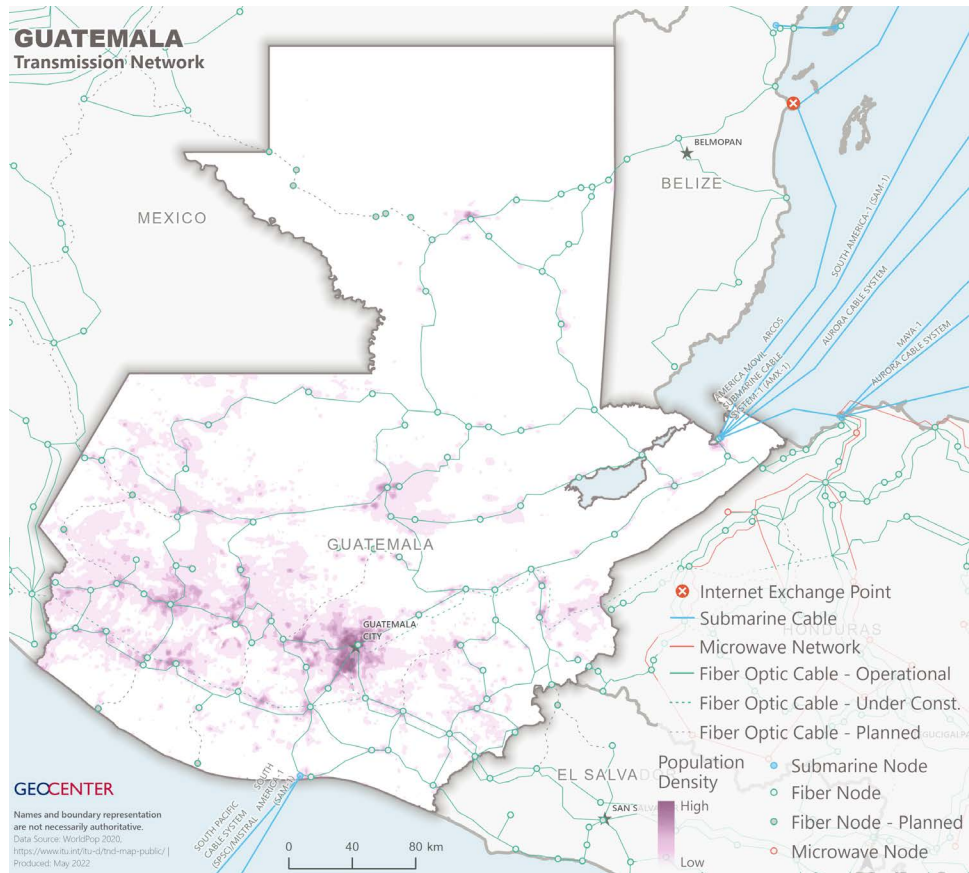
FIGURE 4. Access and use in Guatemala[51]

Source: ITU, 2019; GSMA, 2019; see additional indicators on the DECA Dashboard.

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49   "Claro Guatemala launches 5G in all 22 departments", Telegeography, July 27,2022, https://www.commsupdate.com/articles/2022/07/22/claro-guatemala-launches-5g-in-all-22-departments/?utm_source=CommsUpdate&utm_campaign=4cb58f35ff-CommsUpdate+22+July+2022&utm_medium=email&utm_term=0_0688983330-4cb58f35ff-11647865

50   IXP-GT started operations in November 2019, however is not included in the ITU data sourced to create Figure 3. See the section below, "IXP Guatemala as a local option for a faster and more affordable internet", for more information. Also see this Internet Society report: IXP.GT Improves Speed, Lowers Costs, and Increases Resilience and Security of Guatemala's Internet https://www.internetsociety.org/blog/2021/05/ixp-gt-improves-speed-lowers-costs-and-increases-resilience-and-security-of-guatemalas-internet/.

51   Guatemala's values are shown as red circles, while all other countries are shown in blue.

FIGURE 5. Mobile coverage maps

Tigo (Millicom): 51.7% market share   **América Móvil (Claro and Telgua):** 48.2% market share

Key:
- 2G (GSM)
- 3G
- 4G (LTE)
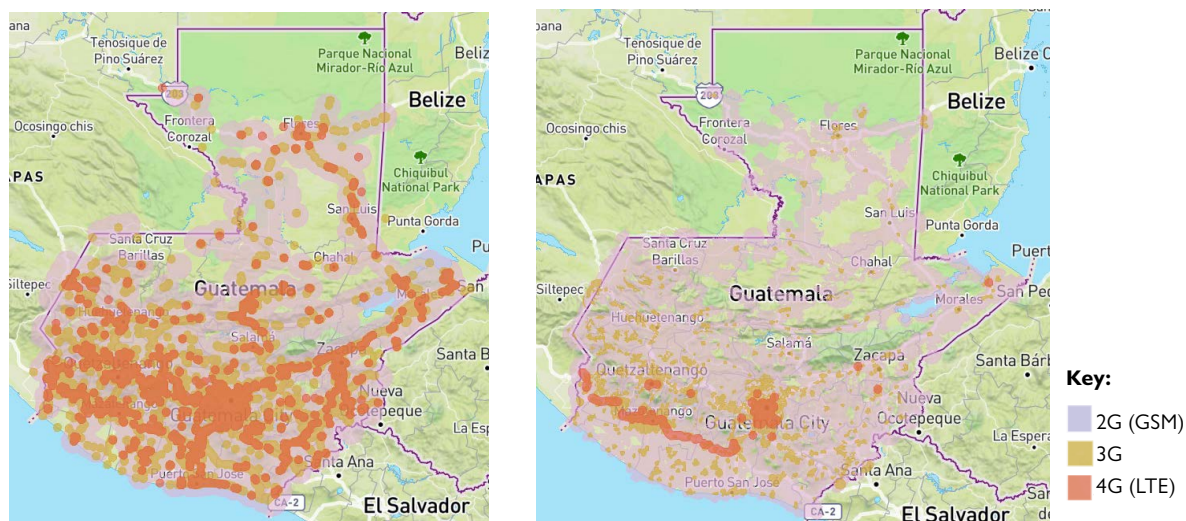
Source: GSMA Network Coverage Maps

When it comes to quality mobile broadband internet, download speeds of 24.19 Mbps and upload speeds of 15.9 Mbps place Guatemala 78 out of 141 countries based on the Speedtest.net October 2022 global rankings (Table 1).[52] For comparison, Honduras and El Salvador are ranked slightly behind Guatemala at 79 and 86, respectively.[53] While Guatemala performs well in terms of mobile broadband download speed, it is ranked last in the region in terms of fixed broadband download speeds. According to an interviewee from a civil society organization, the country's sub-par quality network performance "does not make it possible to have a video conference in a large part of the [country]."[54]

TABLE 1. Global Speedtest Index measures for mobile and fixed broadband download speeds[55]

	MOBILE BROADBAND DOWNLOAD SPEED		FIXED BROADBAND DOWNLOAD SPEED	
	RANKING	SPEED (Mbps)	RANKING	SPEED (Mbps)
MEXICO	76	25.28	75	49.88
GUATEMALA	78	24.19	119	26.01
HONDURAS	79	24.06	107	29.43
EL SALVADOR	86	21.82	108	29.4
NICARAGUA	104	18.01	93	42.75
COSTA RICA	108	17.55	62	59.54
PANAMA	119	14.17	24	110.96
BELIZE	N/A	N/A	95	41.62

Source: October 2022 Global Speedtest Index

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52   https://www.speedtest.net/global-index/guatemala#mobile

53   OOKLA. n.d. "Speedtest Global Index – Internet Speed around the world – Speedtest Global Index." Speedtest Global Index. December 6, 2022. https://www.speedtest.net/global-index

54   Civil society organization, interview by DECA Team, January 2022.

55   OOKLA. n.d. "Speedtest Global Index – Internet Speed around the world – Speedtest Global Index." Speedtest Global Index. December 6, 2022. https://www.speedtest.net/global-index

📖 **KEY TERMS | BOX 3:** Spectrum, ISPs, and MNOs

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. These purposes include telecommunications as well as applications such as radio astronomy or other industrial uses. Some bands (e.gWiFi) do not require a license and are considered unlicensed or non-licensed, meaning that anyone can use them without seeking explicit prior permission. Licensed spectrum requires users (e.g., mobile network operators or FM radio broadcasters) to secure a regulator's approval before use. Licenses are typically assigned through spectrum auctions, which seek to establish the economic value of spectrum as a finite natural resource.

Internet Service Providers (ISPs) deliver access to end-users using both fixed-line and wireless technologies. Wireless ISPs (especially those in rural areas) often seek to take advantage of non-licensed spectrum and low equipment costs by delivering service using this resource. 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 via wireless terrestrial networks. MNOs typically utilize licensed spectrum bands, which, due to the fact that they are not shared, tend to deliver a higher quality, more reliable (and more cost-intensive) service.

The key difference between ISPs and MNOs is that MNOs provide internet service through a particular medium—licensed spectrum. ISPs deliver internet service through other means, including fixed-line connections and unlicensed spectrum (such as WiFi).

CHALLENGES TO AFFORDABILITY OF INTERNET AND DEVICES

The 2019 World Economic Forum Global Competitiveness Report ranked Guatemala 132 out of 141 countries in mobile broadband subscriptions. Only 16.5 percent of the population have a mobile broadband subscription compared to 55.8 percent in El Salvador, 32.1 in Honduras, and 29.6 in Nicaragua.[56] One of the reasons for such a low subscription rate is high costs. Guatemala scored 35.81 out of 100 in the 2021 Alliance for Affordable Internet (A4AI) affordability drivers index. In comparison with other countries in the region, Guatemala only surpasses Nicaragua with its score of 31.77. Honduras and El Salvador have more affordable internet and score 54.28 and 43.59, respectively.[57] According to A4AI, the cost of accessing the internet is expensive and does not meet the global threshold for affordable broadband internet—2 percent of Gross National Income (GNI) per capita. In 2021, the cost of 1 gigabyte (GB) of data was 3.40 percent of the GNI per capita (see Box 2 for additional details).[58] The national average cost, as measured by A4AI, may also mask geographic disparities and rates may be higher in rural areas where there is less competition among MNOs. Even if prices are uniform across the country, broadband will be comparatively less affordable for households with lower income. For such households, it is also important to recognize cost barriers related to device affordability. According to GSMA, device affordability worsened in most countries in Latin America and the Caribbean in 2020 compared to 2019.[59]

A4AI points out that the Government of Guatemala has not taken the necessary measures to reduce the cost of broadband internet. Guatemala's score is 0 out of 10 in response to A4AI's affordability indicator for communications infrastructure: "To what extent have Universal Access/Service Funds prioritized infrastructure investments that will reduce costs and increase access for the underserved." The cost of the internet is a barrier

56   Klaus Schwab, "The Global Competitiveness Report 2019", World Economic Forum, May 12, 2022, https://www3.weforum.org/docs/WEF_TheGlobalCompetitivenessReport2019.pdf

57   "Affordability Drivers Index, "Alliance for Affordable Internet, May 22, 2022. https://adi.a4ai.org/affordability-report/data/?_year=2021&indicator=INDEX

58   "Affordability Drivers Index, "Alliance for Affordable Internet, May 22, 2022. https://adi.a4ai.org/affordability-report/data/?_year=2021&indicator=INDEX

59   Delaporte, Anne, and Kalvin Bahia. "The State of Mobile Internet Connectivity Report 2021 - Mobile for Development." GSMA, September 2021. https://www.gsma.com/r/somic-2021/.

to increasing internet use and the government has not created policies to stimulate lower costs in the market or to provide access for those communities that cannot afford it.

BOX 2: When does data become "affordable"?

The Alliance for Affordable Internet (A4AI) set an affordability target threshold where mobile broadband is deemed affordable if 1 GB of mobile broadband data is priced at 2 percent or less of average monthly income (or Gross National Income (GNI)).[60] As shown in the figure below, mobile broadband is more expensive in Guatemala than in other Latin American countries, though still less expensive than in Nicaragua and Honduras.

FIGURE 6. Comparison of 2021 ADI Scores vs. Latest Affordability (2020)
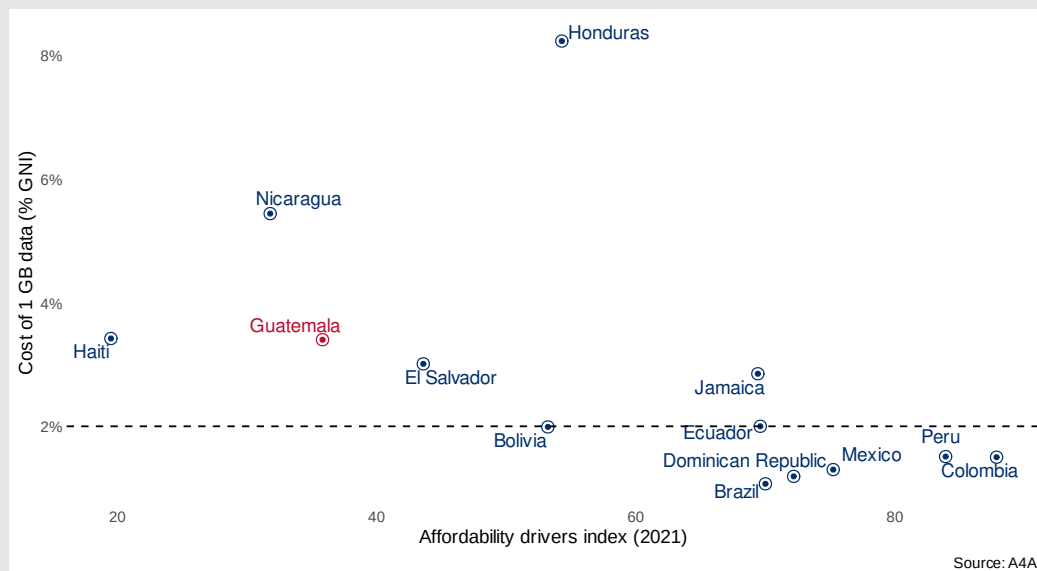
BOX 3: A look at how connectivity gaps and the lack of affordable internet and devices affected access to education during the COVID-19 pandemic

During the COVID-19 pandemic, gaps in Guatemala's network performance affected many aspects of people's lives. *Ak'Tenamit,* a Mayan organization, addresses health, educational, community, and gender issues for rural Indigenous communities, mostly *Maya Q´eqchi* around *Rio Dulce, Izabal*, in eastern Guatemala. An interviewee from the organization said that the community faced connectivity problems during the COVID-19 pandemic and the greatest barriers for students was the lack of access or connectivity and not being able to afford devices or internet.

Students from the *Ak'Tenamit* technical vocational education program had leave their houses and walk around with their smartphones in their hands to try to access the internet. "We have 800 young people registered in the educational center in-person. Some study online, even though internet connectivity is difficult."[61] This lack of connectivity as a barrier to inclusive online education is also highlighted in the 2022 UNDP Human Development Report on Guatemala.[62]

60 "Affordable Internet is "1 for 2," Alliance for Affordable Internet, November 19, 2021. https://a4ai.org/affordable-internet-is-1-for-2/

61 *Ak'Tenamit*, interview by DECA Team, February 2022.

62 "Informe Nacional de Desarrollo Humano", UNDP, July 27, 2022, https://www.undp.org/es/guatemala/publications/informe-nacional-de-desarrollo-humano-desafios-y-oportunidades-para-guatemala-hacia-una-agenda-de-futuro-la-celeridad-del

BOX 3: A look at how connectivity gaps and the lack of affordable internet and devices affected access to education during the COVID-19 pandemic (continued)

Affordability deepened educational inequities during the COVID-19 pandemic. Some people have a device but cannot afford data, others do not have a phone, and still others must share a single phone with their entire household. The interviewee from *Ak'Tenamit* added that, "For the *K'iche* population, it was a necessity for the parents to buy a phone to support their children during the COVID-19 pandemic. They worried that their children were not going to school and they wanted their children to have opportunities they did not have. [*Ak'Tenamit*] helped those who could not afford a phone and data by providing tablets and data top-ups."[63]

In the context of online learning, the price of a desktop computer is prohibitively expensive, but learning on a smartphone can be cumbersome and taxing. Lucia Verdugo, UNESCO's National Education Officer in Guatemala who actively participated in a coalition between UN and SVET (*Secretaría contra la Violencia, Explotación y Trata de personas*), stated, "It is not the same to study on a mobile cellular telephone as on a desktop computer or a laptop. They are not as friendly, especially in reading educational programs. Cell phones have helped communication among teachers and students and to share files."[64] Attending school on a smartphone rather than on a desktop computer or laptop poses challenges including that it can be burdensome to produce content especially when formatting or images are involved, it is time consuming to navigate between windows, and it can be tiring or taxing on students' health to read.[65]

AVAILABILITY OF ELECTRICITY AFFECTS CONNECTIVITY OPTIONS

According to CEPAL, 16 percent of the Guatemalan population do not have access to electricity in their homes, which is a critical barrier to internet access and use among the most marginalized and vulnerable groups.[66] New Sun Road, a private sector company that supports renewable energy access for remote communities, declared, "We would be pleased to work with the Ministry of Education in building infrastructure as a lot of schools do not have power or water. There are lots of ways to create energy with solar panels to provide water, internet, and other services."[67] When asked about the role that ICT plays in carrying out their organization's activities, the representative from *Ak'Tenamit replied*, "To promote, to sell products, to reach markets. However, there are [electricity] blackouts for two or three days at a time. [Electricity] is essential for selling products and also for education."[68]

ROOM FOR IMPROVEMENT IN SPECTRUM MANAGEMENT

Essential aspects of spectrum management are missing in Guatemala. This includes timely clearing and auctioning of spectrum, the available form of frequencies, and regular publishing of allotments.[69] As a result, Guatemala received the lowest scores on the spectrum variable of the GSMA Mobile Connectivity Index.[70] An international expert on telecommunications mentioned that spectrum management in Guatemala is stagnant[71] and an interviewee from a mobile network operator stated that lack of spectrum on the bands (700Mhz band and

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63   *Ak'Tenamit*, interview by DECA Team, February 2022.

64   UNESCO, interview by DECA Team, February 2022.

65   "Computer vs. smartphone", Computer Hope, June 11, 2021, https://www.computerhope.com/issues/ch001398.htm

66   Rubén Calvo et al, "Desarrollo de indicadores de pobreza energética en América Latina y el Caribe 2021", CEPAL, May 12, 2022, https://repositorio.cepal.org/bitstream/handle/11362/47216/4/S2100433_es.pdf

67   New Sun Road, interview by DECA Team, December 2021.

68   *Ak'Tenamit*, interview by DECA Team, February 2022.

69   A manager from an international technology company in interview by DECA Team, January 2022.

70   GSMA. 2021. "GSMA Mobile Connectivity Index: 2022." https://www.mobileconnectivityindex.com/#year=2021&zoneIsocode=GTM&analysisView=GTM.

71   A manager from an international technology company in interview by DECA Team, January 2022.

AWS) that are more efficient for mobile 4G is a significant barrier for service improvement and affordability.[72] Some interviewees expressed indignation with the situation, stating that in 1996 when the General Law of Telecommunications (LGT) came into effect and along with it the liberalization of the telecommunications market, the country was among regional leaders in innovative frequency allocation.[73]

According to the LGT, SIT has a legal obligation to guarantee that spectrum is used efficiently.[74] Only careful management can achieve a balance between licensing processes and important reliant factors including costs, coverage, deployment, quality obligations associated with the spectrum, and competition. Although spectrum auctions have not been held for more than 15 years, there is no evidence of a plan or timeline for clearing the spectrum or for holding new spectrum auctions. The Internet Society (ISOC) outlines three key challenges related to the use of spectrum, which are present in Guatemala as follows:[75]

- **Spectrum Scarcity:** The scarcity—or perceived scarcity—of spectrum and high demand (for uses beyond just telecommunications such as Bluetooth devices, cordless phones, and microwave ovens, which can create interference problems) can deter policymakers from allocating spectrum for improving affordability. Although spectrum is considered a finite resource, technologies have evolved (e.g., IoT, 5G) that make previously unusable spectrum attractive to operators. Many experts encourage policymakers to focus on efficiently managing this public resource, rather than on its limitations.

- **Inefficient use of Spectrum:** The traditional regulatory approach to spectrum licensing in Guatemala has been to authorize broad licenses on an exclusive basis without recognition of the current national frequency assignments, optimization, or a national plan for future use. Exclusive-use, as opposed to shared-use, licenses vest one licensee to an assigned swath of spectrum with exclusive access for an established period. Many licenses cover broad geographic areas, even if the service provider lacks the economic incentive to deploy its network throughout the entire licensed area. This type of licensing can result in lack of coverage in some areas and decreased competition in others.

- **Expense of Spectrum Access:** Spectrum access can come at a high cost, especially where regulators auction spectrum rights to the highest bidder (which puts revenue raising rather than social value at the forefront) or impose high license fees. These are forms of market gatekeeping. Due to the sizable investments made by commercial operators, they frequently demand exclusive use of the spectrum. Although it can be tempting to view spectrum auctions as an opportunity to generate revenue, ISOC noted that governments should focus on putting spectrum to its highest and best use. Governments can consider setting aside spectrum for community or local access networks at a reduced cost or on an unlicensed basis. Other ways of maximizing spectrum use could involve facilitating secondary spectrum markets, as is done in the United States. Doing so ensures long-term benefits for end users and serves the public interest.[76]

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72   An interviewee from a mobile network operator in interview by DECA Team, February 2022.

73   International organization, Interview by DECA Team, January 2022.

74   General Law of Telecommunications, Decree 94-96 of the Congress of the Republic, that was enacted in 1996 and the Political Constitution of the Republic of Guatemala, institutes: "Article 121. Goods of the State. Radioelectric frequencies are State goods."

75   "Unleashing Community Networks: Innovative Licensing Approaches", Internet Society, 2018, https://www.internetsociety.org/resources/2018/unleashing-community-networks-innovative-licensing-approaches/

76   "Unleashing Community Networks: Innovative Licensing Approaches", Internet Society, 2018, https://www.internetsociety.org/resources/2018/unleashing-community-networks-innovative-licensing-approaches/

ALTERNATIVE CONNECTIVITY INITIATIVES REQUIRE A STRONGER ENABLING ENVIRONMENT

The private sector is working on alternative connectivity solutions to cope with Guatemala's digital infrastructure shortcomings. New Sun Road funded by the USAID Microsoft Airband Initiative[77] is implementing a project to develop digital community centers managed by Indigenous women in Santa Rosa, Alta Verapaz.[78] While the project presents an innovative model that pairs solar power with internet connectivity and digital literacy training for rural women, it faces various challenges. The sustainability of the project hinges on the stability of the business model, which after project funding ends in late 2022 will need to rely on small fees paid by end-users. In terms of providing affordable internet at their rural digital community centers, the project is exploring using TV White Space (TVWS). In order to use TVWS, a specific frequency must be cleared for use by SIT. The interviewee from New Sun Road noted that "it is unclear who owns the frequency. Some are owned by the government. There is no clarity on how to use [the spectrum] for rural technology or schools [because] private companies own the spectrum."[79]

The ISOC Chapter of Guatemala has a working group for community networks. The group's goal is to reach locations where current coverage is insufficient or not affordable through community network business models that can be sustained by rural communities. They initiated several pilot projects through funding from the USAID Creating Economic Opportunities (CEO) project.[80] Similar to sentiments raised by the New Sun Road project, the interviewee from ISOC emphasized that improvements in the policy sphere are needed to enable such innovations.

An alternate initiative offered by the internet service provider (ISP), Wayfree, is their effort to provide free connectivity services through WiFi access zones in public spaces. Wayfree identifies locations that tend to have higher concentrations of people (e.g., city parks, metrobus stations, and marketplaces) and sets up free WiFi zones, which are becoming self-sustaining through a proprietary digital marketing model.[81] The Key Terms Box 2 below details the elements of digital infrastructure including options for bringing connectivity to rural areas and key considerations for doing so such as cost and coverage.

There is a need to eliminate illegal business models that operate in small remote towns where small companies, informally called Whispers, get access from ISPs with an internet link and then distribute it illegitimately via wireless technology.

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77   https://www.usaid.gov/digital-development/usaid-microsoft-airband-initiative

78   https://dcc.newsunroad.com/
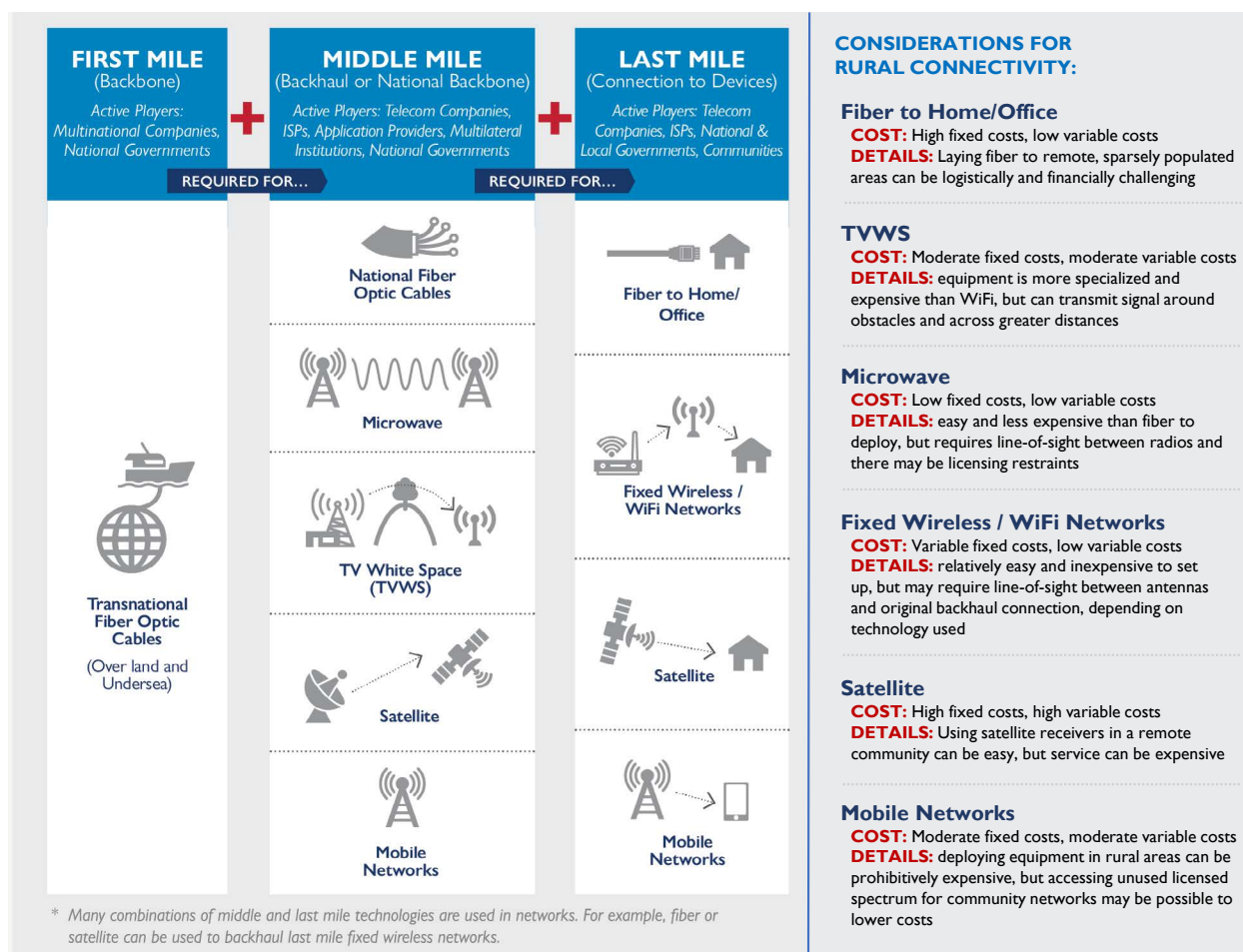
79   New Sun Road, interview by DECA Team, December 2021.

80   International Organization, Interview by DECA Team, January 2022.

81   WayFree, interview by DECA Team, December 2021.

FIGURE 7. Building a Network

FIRST MILE (Backbone)	MIDDLE MILE (Backhaul or National Backbone)	LAST MILE (Connection to Devices)
Active Players: Multinational Companies, National Governments	Active Players: Telecom Companies, ISPs, Application Providers, Multilateral Institutions, National Governments	Active Players: Telecom Companies, ISPs, National & Local Governments, Communities
	REQUIRED FOR...	REQUIRED FOR...
Transnational Fiber Optic Cables (Over land and Undersea)	National Fiber Optic Cables / Microwave / TV White Space (TVWS) / Satellite / Mobile Networks	Fiber to Home/Office / Fixed Wireless / WiFi Networks / Satellite / Mobile Networks

* Many combinations of middle and last mile technologies are used in networks. For example, fiber or satellite can be used to backhaul last mile fixed wireless networks.

CONSIDERATIONS FOR RURAL CONNECTIVITY:

Fiber to Home/Office
COST: High fixed costs, low variable costs
DETAILS: Laying fiber to remote, sparsely populated areas can be logistically and financially challenging

TVWS
COST: Moderate fixed costs, moderate variable costs
DETAILS: equipment is more specialized and expensive than WiFi, but can transmit signal around obstacles and across greater distances

Microwave
COST: Low fixed costs, low variable costs
DETAILS: easy and less expensive than fiber to deploy, but requires line-of-sight between radios and there may be licensing restraints

Fixed Wireless / WiFi Networks
COST: Variable fixed costs, low variable costs
DETAILS: relatively easy and inexpensive to set up, but may require line-of-sight between antennas and original backhaul connection, depending on technology used

Satellite
COST: High fixed costs, high variable costs
DETAILS: Using satellite receivers in a remote community can be easy, but service can be expensive

Mobile Networks
COST: Moderate fixed costs, moderate variable costs
DETAILS: deploying equipment in rural areas can be prohibitively expensive, but accessing unused licensed spectrum for community networks may be possible to lower costs

IXP GUATEMALA AS A LOCAL OPTION FOR A FASTER AND MORE AFFORDABLE INTERNET

Internet exchange points (IXPs) are an important part of internet infrastructure and market competition. They provide neutral locations where networks can exchange traffic affordably. They are physical facilities that create shorter routes for internet traffic and are an affordable option for optimizing local internet traffic. IXPs also offer resilience, stability, efficiency, and quality improvements all at a lower cost,[82] and are promoted as a key piece of local internet infrastructure by international organizations such as the ITU, GSMA, and ISOC.

In 2019, *Punto de Intercambio de Tráfico en Guatemala* (IXP-GT) started operations as an independent project headed by *Red Avanzada Guatemalteca para la Investigación y la Educación (RAGIE)*. IXP-GT works with 12 ISPs in Guatemala and functions as a neutral organization, according to the president of the organization. Each ISP pays USD $200 for annual membership, and USD $300 a month for each interface of 10 GB. They have reached a break-even point, but require greater investment for scaling infrastructure. Each member has a voice and vote and an assembly makes decisions, unlike commercial IXPs. IXP-GT´s president stated that ISPs and other actors need to understand that IXPs are not only a way to save money on international traffic, but they also offer resilience and safety. The president of IXP-GT explained that, "it is a complex scenario since ISPs want to minimize their costs as much as possible. Although the IXP provides many other services, like resiliency, connectivity and security, they [ISPs] keep the focus on saving on international traffic. The price for 1 Mbps is

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82   "IXPs make the Internet faster and more affordable", Internet Society, May 22, 2022, https://www.internetsociety.org/issues/ixps/

much more expensive in Guatemala than in many other regions of the world, which is due to the lack of competition from international submarine fiber optic providers, which are currently three or four."[83]

📖 **KEY TERMS | BOX 4:** Internet Exchange Point (IXP) and Content Delivery Network (CDN)

An **Internet exchange point** **(IXP)** is a physical location through which internet infrastructure companies such as Internet Service Providers (ISPs) and Content Delivery Networks (CDNs) connect with one another.[84] This reduces costs as members of the IXP share the costs of international traffic. IXPs distribute this traffic as if it were local. Members deliver and receive local traffic only, not international. Transporting local traffic could be 17 times cheaper than transporting international traffic.

A **Content Delivery Network** **(CDN)**, also called a content distribution network, is a group of geographically distributed and interconnected servers that provide cached internet content from a network location closest to a user to speed up its delivery. The primary goal of a CDN is to improve web performance by reducing the time needed to send content and rich media to users.[85]

1.3 DIGITAL DIVIDES PERSIST ACROSS GENDER, GEOGRAPHY, INCOME, AND ETHNICITY

The digital divide in Guatemala has several dimensions: geography, gender, ethnicity (non-Indigenous/Indigenous), and socioeconomic status with low digital literacy and low connectivity coverage as key drivers.

📖 **KEY TERMS | BOX 5:** The digital divide explained

The digital divide is the distinction between those who have access and can use digital products and services and those who are excluded. There are often overlapping digital divides that stem from inequities in literacy, cost, social norms, or availability of relevant content. Digital divides may be associated with gender, economic status, geography, and age, among other factors.

During the COVID-19 pandemic, access to quality internet emerged as an essential tool for carrying out daily tasks that previously required in-person contact and that were crucial for the exercise of civil, political, economic, and cultural rights. During this period, digital inequalities became more evident and consequential in Guatemala because a lack of internet access translated directly to a lack of access to education, health services, information, and limitations for economic activities.

The Inter-American Commission on Human Rights (IACHR) and its Office of the Special Rapporteur for Freedom of Expression (SR FOE), within the framework of its Coordination Unit for the Rapid and Integrated Response to the COVID-19 pandemic, expressed their concern regarding the serious limitations posed by the lack of internet access for the most vulnerable sectors of the population, finding that Indigenous communities, women, Afro-descendants, children and youth, among other groups with specific needs, suffered disproportionately in terms of access to and affordability of digital technologies. Barriers to internet access reinforced pre-existing inequalities suffered by these vulnerable and marginalized groups.[86]

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83   IXP Guatemala, interview by DECA Team, January 2022.

84   "What is an Internet exchange point? | How do IXPs work?" n.d. Cloudflare. December 8, 2022. https://www.cloudflare.com/learning/cdn/glossary/internet-exchange-point-ixp/.

85   Lutkevich, Ben. n.d. "What is a CDN? How Do Content Delivery Networks Work?" TechTarget. December 8, 2022. https://www.techtarget.com/searchnetworking/definition/CDN-content-delivery-network.

86   "Press release R206/20", OAS, August 31, 2020, https://www.oas.org/en/iachr/expression/showarticle.asp?lID=1&artID=1182.

LOW INCOME POPULATIONS FACE MORE SEVERE DIGITAL DIVIDES

According to the 2021 GSMA Mobile Economy Latin America report, Guatemala is among the countries with the highest proportion of non-internet users in Latin America. Fifty-one percent of the population has available internet coverage but does not use it. Affordability remains a major barrier to mobile internet use, particularly in the context of the economic fall-out from the COVID-19 pandemic. Guatemala's contraction in GDP per capita translates to a sharp drop in income, with Latin America estimated to have experienced the steepest drop in working hours across the globe in 2020. Despite the fact that the 2020 median cost of entry-level handsets and 1 GB of data fell, the simultaneous negative economic impact of the pandemic meant a decline in the affordability of mobile services in Latin America.[87]

BOX 4: Meaningful connectivity explained[88]

Over half of the world is now online, but many people lack the quality of access they need to use the internet's most powerful features such as online learning, video streaming, and telehealth. The A4AI meaningful connectivity target is a tool to raise the bar for internet access and set more ambitious policy goals for digital development. It sets minimum thresholds across the four dimensions of internet access that matter most to users. These are:

- **Regular internet use; minimum threshold:** daily use
- **An appropriate device; minimum threshold:** access to a smartphone
- **Enough data; minimum threshold:** an unlimited broadband connection at home or a place of work or study
- **A fast connection; minimum threshold:** 4G mobile connectivity

Low-income populations lack access to meaningful connectivity. Several examples were mentioned during the DECA focus groups (see Appendix D). Focus groups were held through video conference, and one participant shared that she made a special effort to buy a few megabytes of data for her prepaid subscription just to be able to participate. Other participants said that their families cannot afford a device for each family member, so a phone handset is shared by more than two people. For some activities such as studying, a smartphone does not offer the proper functionalities for tasks such as reading and writing long texts. Participants emphasized the scarcity of computers in their contexts.

It is not enough to increase access to meaningful connectivity. One interviewee from an international cooperation agency mentioned that during the last five years, mobile telephone network coverage has improved, but affordability for most people remains the main challenge. Interviewees, including one from the Indigenous Peoples community, emphasized the need to prioritize their basic food needs before obtaining a mobile phone and paying for data; would a family struggling to feed itself spend scarce resources to buy a phone and internet access.[89,90] Another interviewee noted that people often use two SIM cards from two different operators so they can take advantage of discounts offered each day by each operator.[91]

When considering meaningful connectivity for low-income populations, one phenomenon that should be considered is the extensive and intensive use of Facebook and WhatsApp among this group, as those social

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87   "The mobile economy Latin America 2021", GSMA, 2021, https://www.gsma.com/mobileeconomy/wp-content/uploads/2021/11/GSMA_ME_LATAM_2021.pdf.

88   "Meaningful Connectivity: A New Target to Raise the Bar for Internet Access", Alliance for Affordable Internet, November 2020, https://docs.google.com/document/d/1qydsmTY4hln3pP4dWJbCSRFna8SfDYAtGfacKYwhVk8/edit.

89   GIZ, Interview by DECA Team, January 2022.

90   Anonymous interview, DECA Team, March 2022.

91   Anonymous interview, DECA Team, March 2022.

network platforms are offered as zero-rated applications. Zero-rated applications are those that ISPs and MNOs allow customers to use without incurring charges; the consumption does not count against their data plan. One participant in the focus groups noted that in some contexts people are not aware of other types of content and services on the internet besides these two platforms. For some groups, "they think the internet is Facebook and WhatsApp".[92] Zero-rating is criticized as being anticompetitive and a threat to net-neutrality as it offers users (especially those that cannot afford data packages) a limited internet experience. Zero-rated content has a competitive advantage over non zero-rated content, which could be struggling to reach the market. Moreover, zero-rated agreements favor major content providers like Meta as they are the only ones that can afford and sustain zero-rated deals with ISPs.[93] It could also promote a tiered internet ecosystem where have no access and are unaware of the social and economic benefits of the internet while privileged groups enjoy access and awareness of the vast benefits of the internet.[94] One interviewee, who is leading a project aimed at promoting the use of digital tools for smallholder farmers, pointed out that it is necessary to position the internet as a tool for productivity.[95]

A PERSISTENT GENDER DIGITAL DIVIDE

The gender digital divide is widening.[96] In 2018, women in Guatemala were 57 percent less likely than men to own a mobile phone.[97] Three years later, this indicator worsened with women 61 percent less likely than men to own a mobile phone.[98] Social media use also shows worsening gender digital divides; in 2018 women were 68 percent less likely than men to use social media,[99] and it increased to 74 in 2021.[100] Due to the structural discrimination women face in Guatemala, they lack meaningful connectivity. This only worsens for women with intersectional identities including rural, Indigenous, and those with a lower socioeconomic status. According to the World Bank, Indigenous populations are affected by a number of structural gaps including market inclusion. These gaps are much wider for Indigenous women. Gender gaps in Indigenous communities may be even larger, given the higher rates of poverty among women-headed Indigenous households.[101]

Women also suffer from a lack of meaningful connectivity driven by low income. According to the GSMA Mobile Gender Gap Report 2021, handset cost is the most important barrier to mobile internet use for Guatemalan women. Data cost is also one of the highest barriers. Both are higher for women in comparison to men.[102]

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92   DECA Focus Group led by DECA Research Team, January 2022.

93   "Zero-rating practices in broadband markets", Publications Office of The European Union, February 2017, https://op.europa.eu/en/publication-detail/-/publication/e47d8605-969e-11e7-b92d-01aa75ed71a1

94   Samantha Bates et al, "Zero-rating & internet adoption: the role of Telcos, ISPs & Technology Companies in expanding internet access", Dash.harvard.edu, October 2017, https://dash.harvard.edu/bitstream/handle/1/33982356/2017-10_zerorating.pdf

95   *Agropecuaria Popoyán*, interview by DECA Team, December 2021.

96   GSMA Mobile Connectivity Index 2021, May 22, 2022 https://www.mobileconnectivityindex.com/#year=2021&zoneIsocode=GTM&analysisView=GTM

97   "Mobile Connectivity Index 2018", GSMA, May 22, 2022, https://www.mobileconnectivityindex.com/#year=2018&zoneIsocode=GTM&analysisView=GTM

98   "Mobile Connectivity Index 2021", GSMA, May 22, 2022, https://www.mobileconnectivityindex.com/#year=2021&zoneIsocode=GTM&analysisView=GTMhttps://www.mobileconnectivityindex.com/ /

99   "Mobile Connectivity Index 2018", GSMA, May 22, 2022, https://www.mobileconnectivityindex.com/#year=2018&zoneIsocode=GTM&analysisView=GTM

100   "Mobile Connectivity Index 2021", GSMA, May 22, 2022, https://www.mobileconnectivityindex.com/#year=2021&zoneIsocode=GTM&analysisView=GTMhttps://www.mobileconnectivityindex.com/

101   "Indigenous Latin America in the twenty first century", World Bank, May 26, 2022, https://openknowledge.worldbank.org/bitstream/handle/10986/23751/Indigenous0Lat0y000the0first0decade.pdf

102   "GSMA Connected Women - The Mobile Gender Gap Report 2021." 2021. GSMA. https://www.gsma.com/r/wp-content/uploads/2021/06/The-Mobile-Gender-Gap-Report-2021.pdf.

However, the fact that 87 percent of women in Guatemala are aware of mobile internet and its potential value,[103] could facilitate increased internet use. According to one interviewee from an international organization, when women are aware of opportunities linked to the use of the internet, they make great efforts to pay for connectivity. The interviewee also noted that women are often more time-constrained than men due to household obligations.[104] The interviewee from *Ak'Tenamit* mentioned education as a key factor affecting women. Due to the high rate of pregnancy among Indigenous girls, only four percent graduate from high school. They struggle to improve their opportunities for social and economic inclusion, contributing to a deepening digital divide.[105]

BOX 5: An overview of the gender digital divide from Stellar Ixq-Saq[106]

In February 2021, New Sun Road started its Stellar Ixq-Saq'e Community Center technology project through grant funding provided by the USAID-Microsoft Airband initiative.[107] New Sun Road designed and built the necessary infrastructure and offers a complementary digital literacy program. Centers are safe spaces that provide access to solar energy, computers, and internet connectivity to rural communities that do not have electricity. The value of these centers was assessed through focus groups and group interviews that included 122 women in 10 communities with no access to electricity in the department of Alta Verapaz. These 10 communities are located in the municipalities of Cobán, Panzós, San Pedro Carchá and Tucurú.[108]

Approximately 35 percent of the women interviewed used the internet, mainly on their smartphone, to communicate with family and friends via WhatsApp, while 46 percent indicated they have felt the need to communicate with family members via the Internet since the COVID-19 pandemic began. However, not all have had access. 70 percent of participants consider the biggest barrier to using the Internet to be not knowing how to use it.

The results also showed that 121 of 122 women are interested in learning how to use the internet mainly to search for information, to obtain access health services, to obtain information on agriculture (94 percent), and to continue their professional or technical education (96 percent). There is a great interest from women in the community for the New Sun Road digital literacy program. The program is taught by trainers from Alta Verapaz in Q'eqchi', considering that 92 percent of the interviewees are fluent in Q'eqchi'. Supplementary written material in Spanish is also included, as 72 percent of the women can read and write in Spanish and only 63 percent in Q'eqchi'.

Culturally, women are not encouraged to learn about technology and remain underrepresented in areas related to science, engineering, and technology. An interviewee from UNESCO noted that it is still common practice to buy a cell phone for boys but not for girls, under the assumption that girls have to help with household chores.[109] A different interviewee from the Unit of Communication and Information at UNESCO Guatemala mentioned that they found it difficult to find women interested in participating in their hackathons. UNESCO believes the reason behind this is that in Guatemala women are afraid to enter STEM degree programs because they think they are not cut out for it.[110] A study carried out by UNESCO and the Web Foundation found a marked gender divide in Guatemala, noting that the field of research and development of technology and

103 "GSMA Connected Women - The Mobile Gender Gap Report 2021." 2021. GSMA. https://www.gsma.com/r/wp-content/uploads/2021/06/The-Mobile-Gender-Gap-Report-2021.pdf.

104 UNESCO. Interview by DECA Team, February 2022.

105 *Ak'Tenamit.* Interview by DECA Team, February 2022.

106 "Empathizing and defining connectivity opportunities for women in Alta Verapaz Guatemala", New Sun Road-USAID-Microsoft, 2021, https://pdf.usaid.gov/pdf_docs/PA00Z8J6.pdf

107 "USAID/Microsoft Airband Initiative Factsheet." 2021. U.S. Agency for International Development. https://www.usaid.gov/digital-development/usaid-microsoft-airband-initiative.

108 "Empathizing and defining connectivity opportunities for women in Alta Verapaz Guatemala", New Sun Road-USAID-Microsoft, 2021, https://pdf.usaid.gov/pdf_docs/PA00Z8J6.pdf

109 UNESCO. Interview by DECA Team, February 2022.

110 "Science, Technology, Engineering, and Math, including Computer Science", U.S. Department of Education, May 12, 2022, https://www.ed.gov/stem

engineering is comprised on only 33 percent women.[111] Another interviewee from a large technology company mentioned that besides the overall scarcity of digital talent, gender diversity is a clear problem.[112]

INDIGENOUS PEOPLE FACE PARTICULAR DIGITAL DIVIDES

According to the World Bank, "the historic legacy of decades of violence and exclusion contributed to a morbid association between belonging to an Indigenous household and chronic poverty." The proportion of Indigenous people living in moderate and extreme poverty in Guatemala increased by 14 percent and 21 percent, respectively, during the first decade of the twenty-first century. Compared with other population groups, the expectations of social mobility for Indigenous populations are low. If a person belongs to an Indigenous household, there is a decreased probability of completing primary and secondary education, increase in probability of working in the informal sector and of a decrease in income, and a probability of a decrease in access to public services.[113]

During the COVID-19 pandemic, the Inter-American Commission on Human Rights (IACHR) urged countries to address the serious risks faced by Indigenous Peoples and to take urgent measures to protect the right to health for Indigenous communities. A large portion of Indigenous People do not have access to the internet, and this becomes a barrier to access to information and to participation in civic consultation processes.[114]

Indigenous populations suffer a lack of meaningful connectivity driven by low income and low coverage in rural areas. According to the World Bank, Indigenous Peoples "did not benefit equally from the exponential growth and democratization of new technologies." While Latin America has become the world's second-fastest-growing market for mobile phones, Indigenous people own a cell phone half as often as non-Indigenous Latin Americans.[115]

The interviewee from *Ak'Tenamit* shared several challenges faced by young Indigenous people and their families. In addition to the need to acquire devices and connectivity to continue education during the COVID-19 pandemic, lack of connectivity increased the costs required to fulfill pre-employment requirements. Young people must produce criminal record checks and tax registers, which cost more to do in physical form than online.[116]

Regarding connectivity infrastructure in the territories where there is a higher density of Indigenous populations (see Figure 9 below), there are some conflicts and legal uncertainties that affect the deployment of telecommunications towers and posts. One interviewee from a private company in the telecommunications market pointed out that there seem to be dual authorities: the elected mayorship and the Indigenous authorities for their communities. Indigenous authorities often have more power than the government entities one and the telecommunications provider must deal with both authorities to acquire permission to expand connectivity infrastructure. Huehuetenango was mentioned as the department where they face the most difficulty installing connectivity infrastructure.[117] A technical manager from a startup that provides alternative connectivity described the same phenomenon.[118]

111 "Women´s Rights Online-Report Card Guatemala", UNESCO, May 12, 2022, http://webfoundation.org/docs/2020/12/GenderReport_English_Template_Screen.pdf

112 International Technology Company, interview by DECA Team, December 2021.

113 "Indigenous Latin America in the twenty first century." World Bank. 2017. https://documents.worldbank.org/en/publication/documents-reports/documentdetail/145891467991974540/indigenous-latin-america-in-the-twenty-first-century-the-first-decade.

114 Inter-American Commission on Human Rights (IACHR), Press Release 103/20, 2020. https://www.oas.org/en/iachr/media_center/PReleases/2020/103.asp

115 "Indigenous Latin America in the twenty first century." World Bank. 2017. https://documents.worldbank.org/en/publication/documents-reports/documentdetail/145891467991974540/indigenous-latin-america-in-the-twenty-first-century-the-first-decade.

116 *Ak'Tenamit*, interview by DECA Team, February 2022, online

117 A manager from the telecommunications sector, interview by DECA Team, March 2022, online

118 Wayfree, interview by DECA Team, December 2021, online

FIGURE 8. Indigenous Peoples population density map, 2018 compared to Guatemala's Connectivity Infrastructure
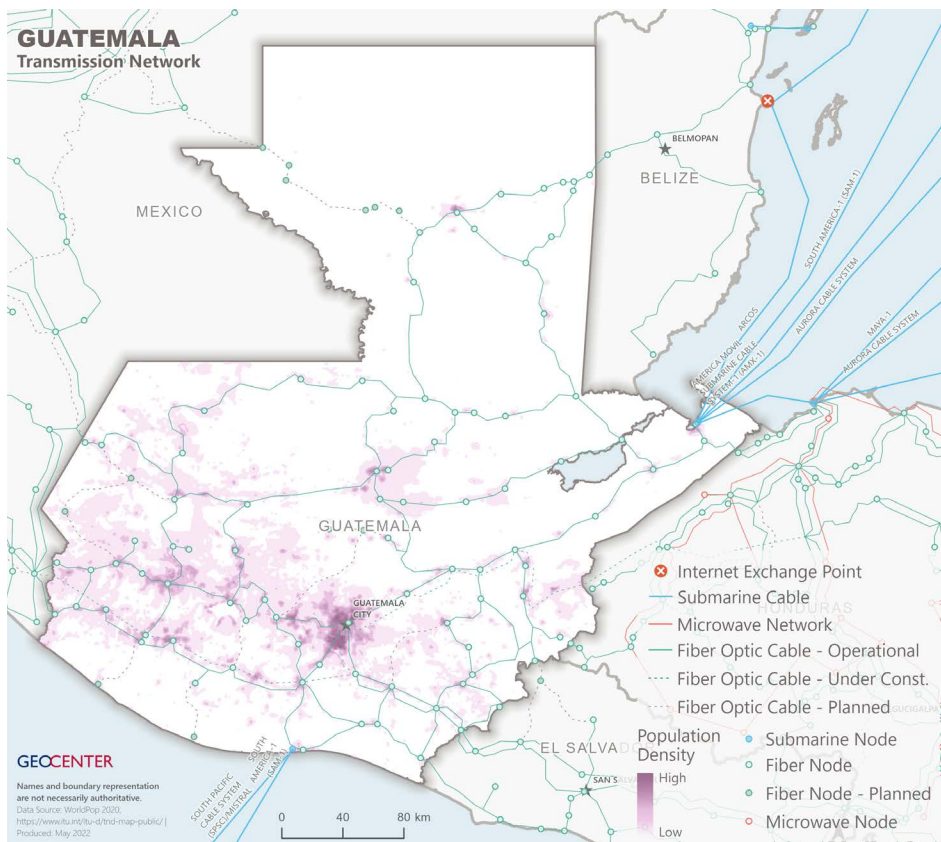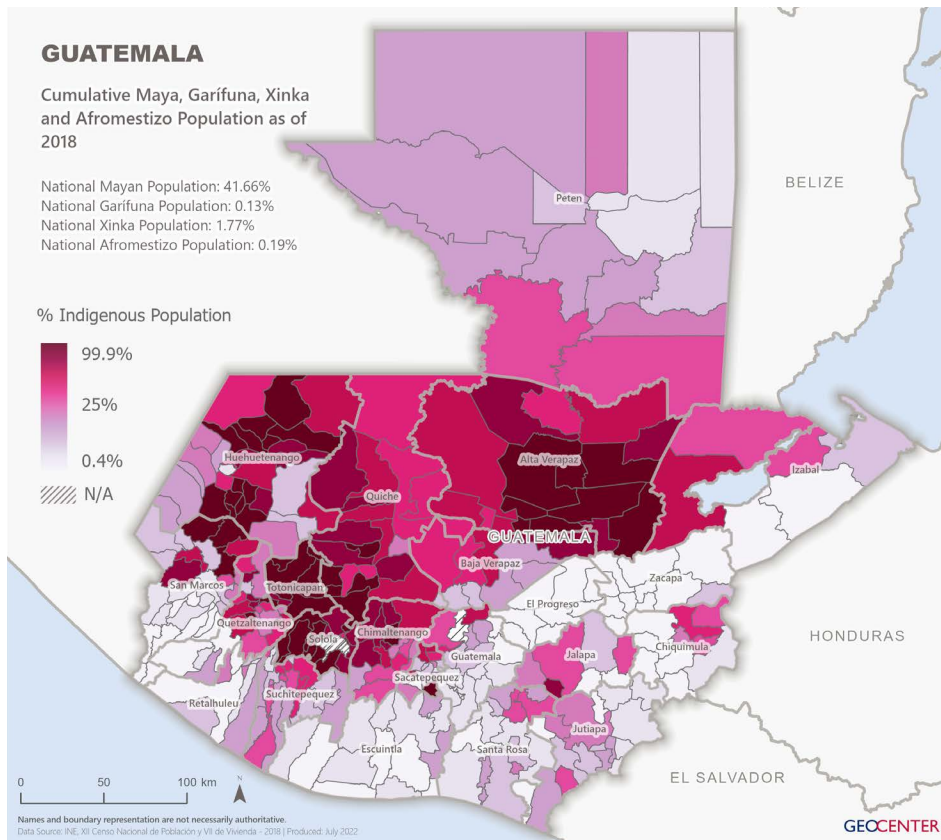
The language barrier could be considered another obstacle to the adoption of digital technologies among Indigenous populations (See Figure 10 below showing the top language for each municipality). While the interviewee from *Ak'Tenamit* mentioned that Indigenous People have no problem when using web pages written in Spanish,[119] another interviewee from an international cooperation agency stated that some Indigenous women who want to make a complaint require an interpreter whether completing the process in person or online.[120] There is suggestion that Indigenous Peoples' needs are not prioritized by the private sector. During interviews, there was no evidence of companies explicitly emphasizing hiring customer service personnel to assist Indigenous Peoples with language barriers.

FIGURE 9. Linguistic map by municipality, 2018

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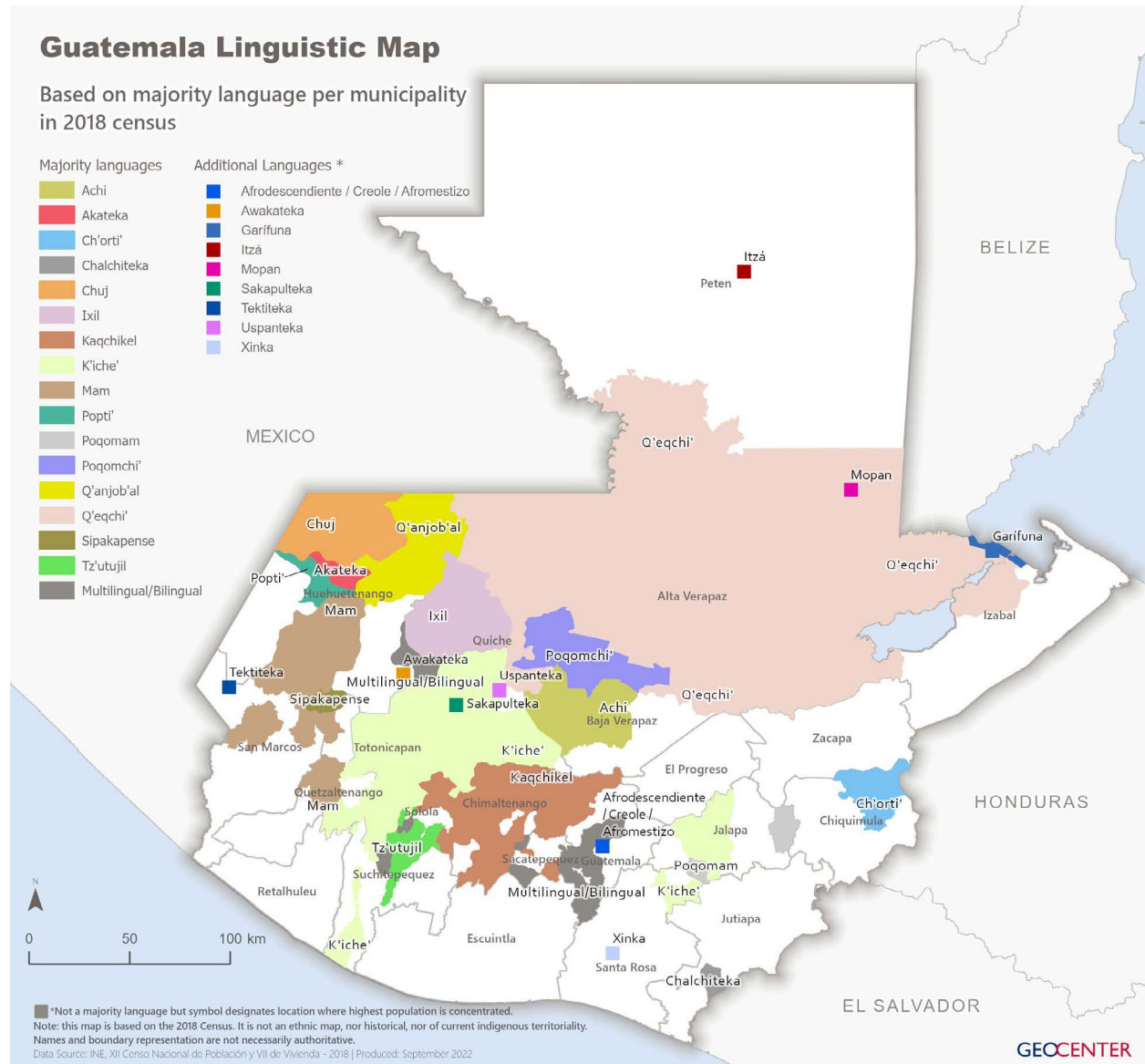
119   *Ak'Tenamit*, interview by DECA Team, February 2022, online.

120   AECID, interview by DECA Team, January 2022.

IMPORTANCE OF DIGITAL LITERACY FOR ALL GUATEMALANS

Low levels of digital literacy pose a major barrier to the inclusive adoption of digital technologies. This barrier is not only present in traditionally excluded groups. One interviewee from an organization working on adoption of ICT by smallholder farmers mentioned that this is an issue even with their field workers when the organization implements ICT-based solutions to collect and store data.[121] Another interviewee noted that while their organization offers digital training for young people, corresponding digital skills in teachers and parents are scarce.[122] An interviewee from an international cooperation agency shared this perception and mentioned that digital literacy is a challenge for the digital transformation process that this organization is executing. According to him, a lack of digital skills is present across every level of work from technical professionals using new tools for monitoring and evaluation to operative talent, such as car drivers, who need to use ICT to report activities and costs for administrative matters.[123]

📖 **KEY TERMS | BOX 6:** Digital Literacy Explained

USAID defines digital literacy as 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.

Digital literacy has two pillars: capacity and safety. Capacity refers to the technical knowledge and skills required to use a variety of digital devices and services. Safety refers to the skills and awareness required to use digital tools carefully while navigating potential harms and cyber threats successfully.

Digital literacy competencies are skills that support users to safely and effectively use technology. USAID uses the European Digital Competence Framework for Citizens (DigComp Framework). The most recent version, DigComp 2.2. was released in 2021 and details digital competencies across five dimensions: information and data literacy; communication and collaboration; digital content creation; safety; and problem solving.

Source: *USAID Digital Literacy Primer, 2022*

One interviewee from a startup offering alternative connectivity offered a detailed description of situations in which people are not able to take advantage of free internet service offerings due to their low levels of digital literacy. He stated that digital skills are about using mobile phones. There are locations in Guatemala such as parks and bus stations where WiFi is available, but this opportunity is wasted because people do not know what WiFi is and how to connect. Even people with good and expensive devices are not often able to use basic functions such as QR code scanning.[124]

Information collected during the DECA focus groups revealed that people with low digital literacy are frequently victims of scams on WhatsApp and through phone calls and SMS. Some participants stated that even when they are aware of this risk, they are hard to avoid because the scams are becoming more sophisticated. An interviewee from the Congress of Guatemala mentioned that they are working on a new law to punish cybercrime (see more in Pillar 2). One of the criminal activities that generates major concern is the use of WhatsApp by coyotes who traffic illegal migrants to attract victims.[125]

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121 *Agropecuaria Popoyán*, interview by DECA Team, December 2021, online.

122 External Consultant for Local Digital Development, interview by DECA Team, December 2021, online.

123 GIZ, interviewee by DECA Team, January 2022, online.

124 Wayfree, interview by DECA Team, December 2021, online.

125 Member of Congress, interview by DECA Team, January 2022, 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

FINDINGS

- While there is an increased citizen demand for digital government services, government capacity and local-level adoption may require support.
- Digital rights require greater protection by law; gaps in the legal framework open the door for online harassment with impunity, which is an especially concerning risk for women, LGBTQI+, and children and youth given Guatemala's history and present-day situation with offline violence against these groups.
- Cybersecurity has improved when it comes to policy on paper, but policy in action and government, citizen, and organizational cybersecurity capacity could be bolstered.
- Media, namely radio and television, are dominated by five media conglomerates. However, a vibrant new ecosystem of independent media is emerging online.

RELEVANT RECOMMENDATIONS

- Build on current efforts that leverage digital technologies to improve public service delivery
- Promote the resilience of civil society and media through advocacy for policy change and capacity-building that counters disinformation
- Build more robust cybersecurity policy, capacity, and awareness *(cross-cutting)*

INTRODUCTION

While the Government of Guatemala's Digital Agenda 2016-2032 presents a unified vision for digital transformation there are capacity gaps that sometimes undermine uniform and consistent implementation. Some key elements of digital rights lack protection altogether such as freedom of expression online, data protection, and protection from online violence including gender-based violence online. Online harassment, disinformation, and self-censorship by journalists exists in Guatemala. Civil society and media tend to lack the digital skills to keep themselves safe from digital harms.

2.1 DIGITAL GOVERNMENT: A FOUNDATION FOR DIGITALLY ENABLED MODERNIZATION, FAST-PACED BUREAUCRACY, AND INCLUSIVE ECONOMIC GROWTH

KEY TERMS | BOX 7: Digitization vs. digitalization

**Digitization:** the conversion of data and documents from an analog to an electronic format.

Digitalization: the use of digital technologies to improve or transform a process or interaction often increasing productivity and efficiency.
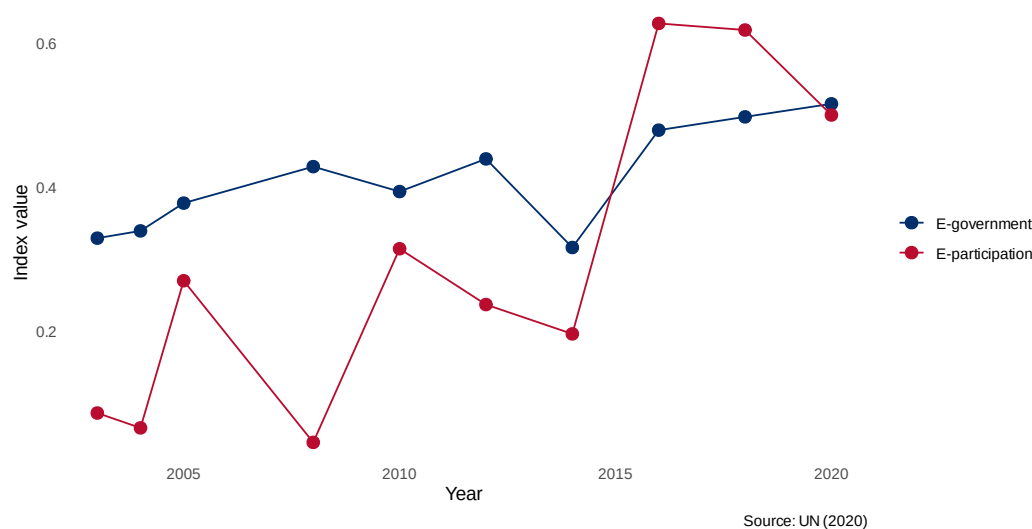
Digital Transformation: a large-scale, organization-level, profound change in multiple work processes and in organizational culture by leveraging digital technologies.

While the Government of Guatemala has developed a few online services and platforms for citizens, there aren't any official strategies or legal frameworks to ensure inclusive adoption and reliable quality. Guatemala ranks 121 out of the 193 countries included in the United Nations E-Government Development Index (EGDI) and 112 out of 193 in the E-Participation Index (EPI).[126,127] This puts Guatemala behind El Salvador and Nicaragua, but ahead of Honduras (see figure 10 below). The EGDI is composed of three sub-indices: the online services index, the telecommunication infrastructure index, and the human capital index. Guatemala has shown steady improvement, on average, over the last five years in both indices (Figure 11, however is scored below the regional average on all three sub-indices.

FIGURE 10. The state of E-government and E-participation 2020

Source: UN (2020)
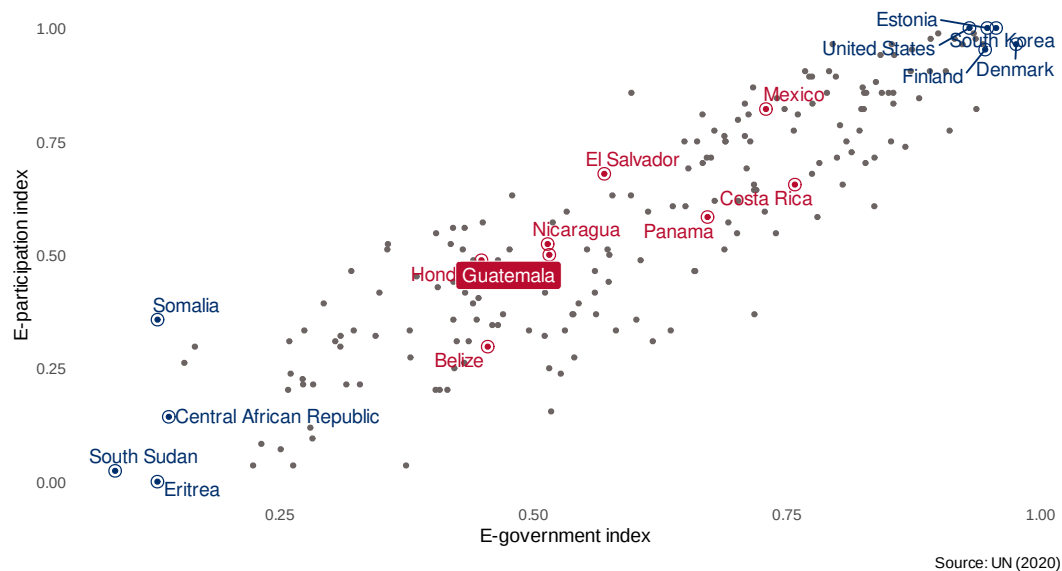
FIGURE 11. The E-government and E-participation in Guatemala 2005 - 2020

Source: UN (2020)

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126   "E-Government Development Index (EGDI)", United Nations, May 12, 2022, https://publicadministration.un.org/egovkb/en-us/About/Overview/-E-Government-Development-Index

127   EGDI is a composite measure of three dimensions of e-government: provision of online services, telecommunication connectivity, and human capacity. EPI: focuses on the use of online services to facilitate provision of information by governments to citizens (e-information sharing), interaction with stakeholders (e-consultation), and engagement in decision-making processes (e-decision making).

> 📖 **KEY TERMS | BOX 8:** USAID Digital Government Model[128]
>
> Digital government[129] refers to *the use of digital technologies as an integrated part of government modernization strategies to create public value.*[130] Successfully navigating digital transformation requires more than adopting new applications; it requires a shift in processes and attitude toward agile and collaborative decision making.
>
> Digital government 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 has the potential to help government bodies become more coordinated, efficient, resilient, proactive, and accountable.

POLICY IMPLEMENTATION AND GOVERNMENT-LED DIGITALIZATION

The national development plan (*K'atun, Nuestra Guatemala 2032*) and the digital agenda (*Agenda Nación Digital 2016-2032*) are the primary policy documents dictating digital transformation in Guatemala.[131,132] The national development plan contains two objectives related to the mainstreaming of digitalization: improve the use of technology within public institutions to streamline processes and transactions; and design, approve, and implement policies for digital inclusion.

There are three important government actors involved in Guatemala's digital transformation efforts: the Presidential Commission for Open and Electronic Government (GAE), Ministry of Interior (MINGOB), and the National Secretariat of Science and Technology (SENACYT). The GAE is tasked with supporting the ministries and institutions of the executive branch to coordinate the application of measures in the international conventions on open and electronic government to contribute to the transformation of public management, innovation in information and communication technologies, citizen participation, accountability, and transparency. An interviewee from the Electronic Open Government Commission mentioned that efforts are being made to strengthen Guatemala's digital strategy through open government initiatives. The interviewee noted that simplification of procedures, open data, and digital government will create substantial improvements in public services.[133]

DIGITALIZATION CAN HELP IMPROVE PUBLIC SERVICE DELIVERY AND TRANSPARENCY, BUT SKILL CAPACITY AND COORDINATION ARE NEEDED

Historically, public service delivery in Guatemala has been inequitable in terms of coverage and accessibility for all citizens. The government, at the central and municipal levels, has made some efforts to tap into the benefits of digitalization to bring services closer to citizens throughout the country. However, without a national strategy, application and impact has been uneven. Additionally, complicated bureaucratic procedures undermine improved government service delivery. There have been recent policy attempts to address the challenge of complex procedures. In 2021, Decree 5-2021 Law for the Simplification of Requirements and Administrative Procedures (*Ley Antitrámites*) was approved by Congress. The Law aims to advance government administrative management through the simplification and digitization of various procedures.[134] The Law includes requirements

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128   USAID Digital Government Model. June, 2022 https://www.usaid.gov/digital-development/digital-ecosystem-framework

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

130   USAID Digital Ecosystem Framework. May, 2022 https://www.usaid.gov/digital-development/digital-ecosystem-framework

131   "*Plan Nacional de Desarrollo: K'atun Nuestra Guatemala 2032*", June 14, 2022, https://observatorioplanificacion.cepal.org/es/planes/plan-nacional-de-desarrollo-katun-nuestra-guatemala-2032

132   *Agenda Nación Digital 2016-2032* (Digital Nation 2016-2032). https://latinno.net/en/case/10165/.

133   Anonymous interviewee, January 2022, online.

134   Simplification Law, June 14, 2022, https://transparencia.gob.gt/wp-content/uploads/DECRETO-NU%CC%81MERO-5-2021.pdf

that promote transparency, ease the use of digital payments, and streamline document processing. The idea is that citizens can save time, resources, and bureaucratic paperwork, and the government can provide increased transparency. This law is intended to facilitate business through streamlined e-government services, reduced costs and management time, which underpins Guatemala's competitiveness to attract investment. The law is binding for all procedures carried out under the Executive branch agencies, and the law and its procedures can be applied by the other autonomous government entities.[135]

There are several programs in Guatemala focused on improving government processes with the aim of strengthening public service delivery through digitalization in the Judicial, Executive, and Legislative branches. For example, USAID/Guatemala's Justice and Transparency Project is working to make the judicial system more efficient through the digitization of files, strengthening of the electronic locker system, and support for courts with online hearings. Online hearings reduce costs and increase efficiency for citizens.[136]

BOX 6: Lessons from USAID/Guatemala support for digital public service delivery in the health sector

The USAID/Guatemala Health and Education Project Plus (HEP+) and the central USAID Data.Fi mechanism are examples of projects that integrate digital technologies for the purposes of improving health service delivery and transparency through the use of improved information systems and data-driven decision making.[137] HEP+, in particular, focuses on improving the accountability of government agencies and the quality of government services.[138]

The HEP+ team works with three civil society organizations targeting women and youth, supporting vulnerable citizens in those population groups can access government services. An important element of their inclusion-focused work is providing access to information training for women and youth, which helps them understand how to use government programs, where to find information, and how to gain access to it.[139]

In late 2021, in support of the Ministry of Public Health and Social Welfare and in partnership with the USAID Global Health Supply Chain Program-Procurement and Supply Management project, Data.Fi guided the government's national data use strategy for COVID-19 control. Using key indicators that were agreed upon by a multi-stakeholder group, Data.Fi created a COVID-19 situation room.[140] Data.Fi also developed hyperlocal maps to inform COVID-19 vaccine distribution. The maps were used to support strategic and equitable vaccination of the most vulnerable and hard-to-reach populations including Indigenous peoples in rural areas.[141]

The Ministry of Finance (MINFIN) and the Superintendent of Tax Administration (SAT) have made progress on transparency, openness, and access to information. MINFIN is making efforts to bring citizens closer to the government through transparency-enabling digital platforms as outlined in Box 7 below.[142]

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135   At the time the DECA interviews were conducted in winter 2021/22 details regarding the implementation of *Ley Antitrámites* were not available.

136   Justice and transparency project, Interview by DECA Team, December 2021, online

137   "For Missions – Data.Fi." 2022. Data.Fi. https://datafi.thepalladiumgroup.com/missions/.

138   "Health and Education Policy Project Plus (HEP+)." 2022. U.S. Agency for International Development. https://www.usaid.gov/guatemala/programs/hep-plus.
      "Health and Education Policy Plus: Guatemala." 2022. Health Policy Plus. http://www.healthpolicyplus.com/ns/pubs/8210-8370_GuatemalaCountryBrief.pdf.

139   Health and Education Policy Plus: Guatemala, July 21, 2022, http://www.healthpolicyplus.com/ns/pubs/8210-8370_GuatemalaCountryBrief.pdf

140   Data.fi, June 14, 2022, https://datafi.thepalladiumgroup.com/wp-content/uploads/2022/05/Data.FI-Semi-Annual-Performance-Report_29April-2022-v2.pdf

141   Data.fi, June 14, 2022, https://datafi.thepalladiumgroup.com/wp-content/uploads/2022/05/Data.FI-Semi-Annual-Performance-Report_29April-2022-v2.pdf

142   Government representative, Interview by DECA Team, February 2022, online.

BOX 7: Spotlight on digital services and platforms

MINFIN and SAT currently have active citizen-facing digital platforms. However, it was unclear from interviews to what extent these platforms are used and to what degree they function to increase transparency. Active services and platforms include:

- *Guatecompras*: As of March 2004, all government entities are required to use the online system to track all procurement processes. The platform is intended to increase transparency as all tenders are public and anyone can track the process via the platform.[143] In 2019, through the USAID Fiscal and Procurement Reform Project, the *Guatecompras* mobile app was launched, which further reduced administrative costs and increased transaction transparency.[144]

  Guatecompras has become an important tool for media outlets and civil society organizations to research contracts from the government, as the platform provides information about government contracts and providers, which allows journalists access to detailed information. For example, in 2019, *Ojo Con Mi Pisto* used data from *Guatecompras* to look into the fairness of local government contracts, discovering that government procurement favored only five contractors, of the 2,200 in the tenders published on *Guatecompras*.[145] The media alliance, Guatemala Leaks,[146] coordinated by *Plaza Publica*, *No-Ficcion*, *Agencia Ocote*, and *Ojo Con Mi Pisto* published research regarding overpriced contracts citing *Guatecompras* as the data source.[147]

- **Open Data Portal:** The Ministry of Finance has an open data portal, which was created to facilitate access to and reuse of public sector fiscal transparency information.[148]

- **Agencia Virtual SAT:** The SAT Virtual Agency is the web platform that allows citizens to carry out operations and inquiries for tax purposes, registration and updating of personal data, and vehicle registration, among others.[149]

There are differences when comparing the abilities of central and local (municipal) governments to integrate digital technologies in their work and apply them to citizen-facing services. Gaps not only exist in terms of digital skills capacity, but also in terms of internet access and ability to provide digital services that are sufficiently tailored to local citizens. According to the USAID/Guatemala *Nexos Locales* project, which strengthens municipal government public service management, procurement systems, and transparency, when working at the municipal level it is necessary to account for citizen demographics including Indigenous languages, internet access, literacy and education levels, and device ownership. However, it was noted that while there are significant and unique challenges to working with municipal governments, especially those in rural areas with high percentages of Indigenous populations, the COVID-19 pandemic forced digitally enabled adaptation and change. This change is supported and sustained through efforts like the training provided by *Nexos Locales* to municipal government staff on using digital government systems.[150]

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143   *Guatecompras*, June 14, 2022, https://www.guatecompras.gt/.

144   Fiscal and Procurement Project DAI, June 14, 2022, https://www.dai.com/our-work/projects/guatemala-fiscal-and-procurement-reform-project-fprp.

145   Los cinco grandes proveedores de las municipalidades en 2019, Ojo Con Mi Pisto, July 27, 2022, https://www.ojoconmipisto.com/los-cinco-grandes-proveedores-de-las-municipalidades-en-2019/.

146   "Guatemala Leaks." n.d. December 9, 2022. https://guatemalaleaks.org/#alianzas.

147   Cafe, azucar y televisores las compras sobrevaloradas del congreso, Guatemala Leaks, Agencia Ocote, July 27, 2022, https://www.agenciaocote.com/blog/2022/06/01/cafe-azucar-y-televisores-las-compras-sobrevaloradas-del-congreso%EF%BF%BC/.

148   Open Data Portal MINFIN, June 14, 2022. https://datos.minfin.gob.gt.

149   Portal SAT, Superintendencia de Administración Tributaria (SAT), June 14, 2022, https://portal.sat.gob.gt/portal/.

150   USAID Nexos Locales, June 14, 2022, https://www.usaid.gov/guatemala/programs/nexos-locales.

A MULTI-STAKEHOLDER APPROACH TO INTERNET GOVERNANCE EXISTS

Internet governance is "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."[151] Internet governance covers topics such as internet identifier management, information-sharing, coordinated malware analysis and incident response, standard design and adherence, and domain management.[152] 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.

Guatemala is a member of various regional and international internet governance networks (Table 2). However, their effectiveness in influencing national policy and action to regulate the internet in alignment with international and regional best practices is lagging.

TABLE 2. Guatemala's membership in regional and international internet governance networks

NETWORK NAME	YEAR JOINED
Internet Governance Forum (IGF)[153]	2017
Open Government Partnership (OGP)	2011
Internet Corporation for Assigned Names and Numbers (ICANN)	2006
Latin American and Caribbean Internet Addresses Registry (LACNIC)[154]	2006

The Internet Governance Forum (IGF), convened by the United Nations Secretary General, is a global multistakeholder forum for discussion of internet governance best practices. The national Internet Governance Forum (IGF) initiative in Guatemala was established in 2017 to create an open space for dialogue among all stakeholders within the internet ecosystem, including national and international experts, government entities, private sector actors, civil society organizations, and the technical and academic community on equal terms and through an open process.[155] The UN Secretariat officially recognized IGF Guatemala as complying with the minimum primary conditions: free of charge, inclusive, non-commercial, and built with a bottom-up approach. The IGF is intended to be a resource on internet governance and to create awareness of the use and management of the internet in Guatemala.[156] Although the Forum is not a space for policy creation, it allows digital ecosystem actors to connect to discuss issues regarding the development of the Internet in Guatemala. The most recent annual meeting of IGF Guatemala was held virtually in November 2021.[157] Some of the key stakeholders involved in the organizing committee include representatives of the Guatemala Chapter of the Internet Society (ISOC), Vice Ministry of Information Technologies of the Ministry of the Interior (MINGOB), Ministry of Education (MINEDUC), Vice Ministry of Technology and Transportation of the Ministry of Communications, Infrastructure, and Housing (MICIVI), INTECAP, and UNESCO as well as from the *Universidad del Istmo*, *Universidad Rafael Landívar (URL)*, Entrepreneurs for Education, and the Telecommunications Business Council (CETEL). Another key stakeholder involved in internet governance in Guatemala is the Universidad del Valle de Guatemala (UVG).

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151   USAID.gov. "USAID Digital Ecosystem Country Assessment". May 10, 2022. https://www.usaid.gov/sites/default/files/documents/USAID_DECA_Toolkit_JAN_22.pdf.

152   Internet of Governance website. May 10, 2021. https://www.internetgovernance.org/what-is-internet-governance/

153   Internet of Governance Guatemala, June 14, 2022, https://igf.gt/2021/

154   Latin America and Caribbean Network Information Center. June 14, 2022, https://www.apnic.net/events/presentations/lacnic/#:~:text=The%20Latin%20America%20and%20Caribbean,Latin%20America%20and%20the%20Caribbean.

155   Internet of Governance Guatemala, June 14, 2022, https://igf.gt/2021/.

156   Internet of Governance Guatemala, June 14, 2022, https://igf.gt/2021/.

157   Internet of Governance Guatemala, June 14, 2022, https://igf.gt/2021/.

When Guatemala formalized its relationship with ICANN in 2006, UVG was authorized as the entity in charge of the administration of the ccTLD .gt.[158,159]

2.2 DIGITAL RIGHTS IN GUATEMALA

Guatemalan citizens increasingly use digital tools to communicate, collaborate, and publish information. This move to digital civic spaces presents opportunities for more varied forms of public engagement. However, there are insufficient policy- and user-level safeguards to mitigate risks of digital rights violations across the board including freedom of expression, access to information, the right to privacy, data protection, and the protection of minors.

DIGITAL RIGHTS: THE POLICY AGENDA

Guatemala is a democratic country that faces challenges in protecting human rights, especially for vulnerable groups such as women, youth, indigenous, and LGBTQI+ people. According to the United Nations High Commissioner for Human Rights, "Guatemala continues to face systemic and structural human rights challenges, in particular poverty, inequality, discrimination, impunity, and insecurity, exacerbated by COVID-19."[160] Guatemala is rated as "Partly Free" by the 2022 Freedom in the World index, Freedom House's annual study of political rights and civil liberties worldwide.[161] This is aligned with El Salvador and Honduras, better in comparison to the "Not Free" rating for Nicaragua, and behind the "Free" rating for Belize, Costa Rica, and Panama. Freedom House reports that while there are regularly held free elections, organized crime and corruption as well as criminal extortion without pathways for legal recourse are commonplace.[162]

While there isn't a data protection law, the Constitutional Court of Guatemala (CC)—the highest court for constitutional law in Guatemala—developed jurisprudence regarding consent needed from individuals and institutions when it comes to compiling and commercializing personal data. According to the CC, data subjects have the right to informed consent, access to their data, rectification of their data, and removal of their data from private databases. The CC also ruled that there must be policies in place regarding data maintenance and use that ensure an individual's right to rectify data.[163] No specific institution provides enforcement of the ruling. However, according to Arias Law, "the entity acting as data controller or data processor of the personal data may be held liable, at least from a strict civil liability point of view."[164] For example, if a company was negligent when processing data they could be held responsible.

Guatemala has a Law on Access to Public Information enforced by the *Procuraduría de Derechos Humanos (PDH)*, which defines important data protection tenets like sensitive personal data.[165] It guarantees every person's right to know and have access to their personal information that is held by governmental agencies, registries,

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158   ICANN Formalizes Relationship with ccTLD Manager for Guatemala, June 14, 2022, https://www.icann.org/ru/announcements/details/icann-formalizes-relationship-with-cctld-manager-for-guatemala-7-9-2006-en

159   Dominios GT, June 14, 2022, https://www.gt/

160   World Report 2022 Guatemala, Human Rights Watch, July 27, 2022, https://www.hrw.org/world-report/2022/country-chapters/guatemala

161   Freedom in the World, World Freedom House's, https://freedomhouse.org/report/freedom-world

162   Freedom in the World, World Freedom House's, June 14, 2022, https://freedomhouse.org/report/freedom-world

163   Del Valle, Luis Pedro. Arias Law, Data Guidance, June 14, 2022, https://www.dataguidance.com/notes/guatemala-data-protection-overview.

164   Del Valle, Luis Pedro. Arias Law, Data Guidance, June 14, 2022, https://www.dataguidance.com/notes/guatemala-data-protection-overview.

165   Law on Access to Public Information, June 14, 2022, https://www.oas.org/juridico/pdfs/mesicic4_gtm_acceso.pdf

offices, and public and private entities that receive public funds. It also criminalizes the commercialization or distribution of personal information files, sensitive data, or personal data without this person's prior consent.[166]

BOX 8: COVID-19 aggravated existing weaknesses in human rights protection

In October 2020, *UDEFEGUA* in collaboration with other regional organizations, published a report titled *Defending rights in times of COVID*, which describes how COVID-19 exacerbated the democratic and human rights crisis in the region and in Guatemala.[167] The report was developed through a series of virtual forums that brought together 26 human rights defenders in the region to discuss how the COVID-19 pandemic affected their work. Topics included the experiences of women human rights defenders, access to information, the fight for memory, truth, and access to justice, environmental issues, and labor rights. The report found that victims of human rights violations face both physical and technological barriers as they try to seek justice and that governments did not sufficiently pivot to provide alternative means for accessing the justice system during the COVID-19 imposed lockdowns. Human rights defenders also reported experiencing an uptick in digital attacks on activists.[168]

WOMEN AND GIRLS ARE VULNERABLE AND UNPROTECTED FROM ONLINE VIOLENCE

In 2018, the United Nations estimated that 83 percent of crimes against women in Guatemala go unpunished.[169] The GoG has entities focused on women including the Defensoría de la Mujer Indígena (DEMI) and Secretaría Presidencial de la Mujer (SEPREM). According to SEPREM, the entity that advises and coordinates public policies to promote the integral development of Guatemalan women, efforts are being carried out by the government to collect data related to attacks against women, as well as other information that is relevant for decision-making around gender based violenc. Among one of SEPREM's most important efforts is the creation of a platform that analyzes 89 indicators related to women. SEPREM also integrates a gender approach to the government's budget, analyzing investment focused on women through digital platforms.[170] SEPREM seems to be making strides in terms of improving the collection and use of gender disaggregated data to inform the development and implementation of more inclusive policies. However, while there are laws issued to protect women from domestic violence, sexual violence, trafficking and exploitation, femicide, and other forms of violence, there are no laws prohibiting sexual harassment and no laws regarding gender-based violence online.[171]

Gender-based violence increased during the COVID-19 pandemic due in part to mandatory national curfews. Vulnerable women and girls were suddenly cut off from external sources of support, increasing isolation and tensions at home. These conditions made it impossible for women to report violence and reach out for help. Guatemalan authorities tried to deliver solutions by implementing reporting systems, emergency hotlines, and a mobile phone application that could function as a panic button for women to seek help. However, gaps in internet coverage and use as well as in device ownership (outlined in Pillar 1) mean that many women could not effectively use these support options.[172] This is especially true for the most vulnerable and marginalized

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166   Del Valle, Luis Pedro. Arias Law, Data Guidance, June 14, 2022, https://www.dataguidance.com/notes/guatemala-data-protection-overview.

167   Defender derechos en tiempos de COVID19, *UDEFEGUA*, June 14, 2022, https://udefegua.org.gt/informes/resumen-del-informe-de-situacion-de-personas-defensoras-de-derechos-humanos-guatemala-2019/

168   Defender derechos en tiempos de COVID19, *UDEFEGUA*, June 14, 2022, https://udefegua.org/noticias/defender-derechos-en-tiempos-de-covid19#:~:text=El%20brief%20%E2%80%9CDefender%20derechos%20en,15%20de%20octubre%20de%202020

169   No Justice: Gender-based Violence and Migration in Central. Wilson Center. June 14, 2022, https://gwbcenter.imgix.net/Publications/Reports/gwbi_Immigration,_Security,_and_Gender-Based_Violence.pdf

170   Government representative, interview by DECA Team, January 2022, online.

171   Guatemala Report. UN Women, June 14, 2022, https://lac.unwomen.org/en/donde-estamos/guatemala.

172   A lifeline for survivors of gender-based violence during lockdown. Minority Rights Group https://minorityrights.org/trends2021/guatemala/

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populations, which in Guatemala often includes Indigenous and rural women and girls who face layers of discrimination including violence and marginalization fueled by a history of genocide and repression.[173]

LACK OF ORGANIZATIONS PROMOTING AND DEFENDING DIGITAL RIGHTS

There are civil society organizations that rely on digital technologies in their work such as social media campaigns and platforms that promote citizen participation, but Guatemala does not have savvy organizations fighting for digital rights. Few institutions are equipped with the knowledge and produce the research needed to advocate for the digital rights agenda. There are also challenges when it comes to the government prioritizing digital rights issues, and digital rights are rarely a topic of electoral campaigns, civil society strategies, or academic research. There are some regional organizations such as *Indela*, *IPANDETEC*, and *Derechos Digitales*, but they have limited advocacy and programmatic portfolios in Guatemala.[174,175,176]

MISINFORMATION AND DISINFORMATION

Misinformation and disinformation are present in Guatemala's information space. This has become especially powerful due to the rise of net centers. The term net center refers to the phenomenon of dozens of people (often young men) managing hundreds of online accounts to run coordinated disinformation campaigns.[177] Net centers emerged over the last eight years as spaces dedicated to using fake social media accounts to create and spread false news or to harass journalists, activists, and members of civil society online.[178] Disinformation-fueled attacks disincentivize citizen online participation. The resulting chaos and doubt around individual's and organization's credibility decreases the likelihood of online political discussions. According to the Committee to Protect Journalists (CPJ), journalists report that net center activity may have declined since the 2019 election, but the threat clearly still exists.[179]

📖 **KEY TERMS | BOX 9:** Malinformation, misinformation, and disinformation

Malinformation is the deliberate publication of private information for personal or private interest, as well as the deliberate manipulation of genuine content. Note that this information is based on reality but is used and disseminated to cause harm.

Misinformation is 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 is 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.

Source: USAID Disinformation Primer

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173   Justice: Gender-based Violence and Migration in Central. Wilson Center, June 14, 2022, https://gwbcenter.imgix.net/Publications/Reports/gwbi_Immigration,_Security,_and_Gender-Based_Violence.pdf.

174   INDELA. June 14, 2022, https://indela.fund/en/contact/.

175   IPANDETEC, June 14, 2022, https://www.ipandetec.org/.

176   Derechos Digitales. June 14, 2022, https://www.derechosdigitales.org/tag/guatemala/.

177   How an army of trolls protects Guatemala Corrupt elite, The Intercept, June 14, 2022, https://theintercept.com/2018/04/07/guatemala-anti-corruption-trolls-smear-campaign/

178   Los Netcenters: negocio de manipulación, Luis Assardo, June 14, 2022, https://luisassardo.medium.com/los-netcenters-negocio-de-manipulaci%C3%B3n-2140cf7262fc.

179   Trust deficit: Guatemala's new president must overcome skepticism to improve press freedom, CPJ, June 14, 2022, https://cpj.org/reports/2020/03/guatemala-giammattei-journalists-online-harass-discredit-corruption-environment/.

FACT CHECKING EFFORTS EXIST, ON A SMALL SCALE

There are a few fact-checking initiatives working to counter the spread of mis- and disinformation in Guatemala. The independent media organizations *Agencia Ocote* and *Plaza Pública,* are leading the push for awareness around mis- and disinformation and for fact-checking. During the COVID-19 pandemic, these online media organizations were able to analyze misinformation related to vaccination and contagion. They carried out communication campaigns to promote correct and truthful information. *Confirmado* carries out a range of activities including efforts dedicated explicitly to countering disinformation around elections and the COVID-19 pandemic. *Confirmado* is creating an educational platform that teaches users how to detect and combat disinformation. However, such verification and digital hygiene building efforts are no match for the volume of disinformation.[180]

VULNERABLE GROUPS ARE ALSO MORE VULNERABLE ONLINE

Many of the attacks carried out in the digital space are more aggressive against vulnerable groups including women, LGBTQI+ communities, and indigenous communities. There are concerns about attacks against Indigenous communities on social media affecting their participation in the digital ecosystem, which excludes them from social and economic opportunities related to technology. Misinformation has also significantly impacted Indigenous populations, undermining traditions of trust between community members.[181]

BOX 9: *#TengoMiedo* (I'm Afraid) social media campaign sparks offline action

In early 2021 a social media campaign, *#TengoMiedo* (I'm Afraid) was launched in Guatemala. Women used the *#TengoMiedo* to express fears about becoming victims of gender-based violence.[182] The campaign was intended to bring attention to the need to create both online and offline efforts to put an end to violence against women and girls.[183]

This act of freedom of expression online did not come without consequence. The organizer, Maria Alejandra Morales, was removed from her position as an advisor in the National Office of Civil Service. Morales filed an injunction at the Constitutional Court alleging her rights to freedom of speech had been violated.[184]

According to CPJ, widespread discrimination against Indigenous journalists is rooted in traditional notions of who is or is not a journalist. This, in turn, affects how the government treats legal cases. If a journalist is not officially affiliated with a corporate media outlet, the attorney general's office will not represent them in a discrimination case. CPJ reported that there have been instances of community reporters becoming the subjects of pirate radio criminal investigations after submitting complaints to the attorney general's office. As a result, Indigenous reporters often avoid seeking justice or reporting attacks and threats as they do not want to draw undue attention to themselves and their work.[185]

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180   External Consultant for Local Digital development, interview by DECA Team, December 2021, online.

181   Civil society organization, interview by DECA Team, February 2022, online.

182   *#TengoMiedo*, Twitter, June 14, 2022, https://twitter.com/TengomiedoG.

183   *#TengoMiedo*: a rallying cry to end violence against women in Guatemala, *El País*, June 14, 2022, https://english.elpais.com/usa/2021-05-05/tengomiedo-a-rallying-cry-to-end-violence-against-women-in-guatemala.html

184   "Communications consultant fired from government office for waging campaign against violence against women," Mesoamerican Initiative of Women Human Rights Defenders, June 14, 2022. https://im-defensoras.org/2021/03/whrd-alert-guatemala-communications-consultant-fired-from-government-office-for-waging-campaign-against-violence-against-women/.

185   "Trust deficit: Guatemala's new president must overcome skepticism to improve press freedom," CPJ, June 14, 2022. https://cpj.org/americas/guatemala/2020/.

2.3 THE ROLE OF CIVIL SOCIETY AND MEDIA IN THE DIGITAL ECOSYSTEM

FIVE LARGE MEDIA GROUPS DOMINATE RADIO AND TELEVISION IN GUATEMALA

While online and social media increasingly penetrate the media consumption market share, especially for youth, traditional media still have a large percentage of coverage at the national level. According to Reporters without Borders (RSF), the mainstream media in Guatemala is highly concentrated.[186] This affects the diversity of content transmitted through the press, radio, television, and the Internet. An investigation from Plaza Publica stated that five large, mostly family-run media groups dominate radio and television in Guatemala with about 40 percent ownership of the FM radio spectrum.[187] Most of the commercial radio and television frequencies in the country are concentrated within these groups.[188]

VIBRANT NEW DIGITAL MEDIA ECOSYSTEM IN GUATEMALA

New digital media platforms are emerging in Guatemala, generating changes in information sharing and diversity of content. Traditional media have had to migrate to digital platforms to continue to operate efficiently. The medium of journalism is evolving from paper to digital. Print is much more expensive than digital, which is forcing traditional media to have their own digital newspapers.[189]

The rise of online media platforms allows space for independent media to enter the market. Independent online media generate high-impact research, which they easily distribute through online platforms. An early trend of new, hyper-specialized digital media outlets have carried out investigative journalism offering their content online only through subscription or patronage schemes. Some of these outlets currently enjoy equal or greater recognition than traditional, mainstream media. Examples of the growing independent online media include *Plaza Publica*, *Agencia Ocote*, *No Ficcion*, and *Ojo Con Mi Pisto*.

CIVIC COLLABORATION WITH THE GOVERNMENT

Civil society organizations and the media routinely pursue efforts to support government transparency. Local organizations analyze and attempt to make public budgets and quality reports on social programs. International initiatives facilitate collaboration between CSOs and public officials with the aim of making processes more transparent and efficient and of supporting greater citizen participation. The Open Government Partnership (OGP) is demonstrating positive impact. The organization aims to ensure that CSOs and citizens have a role in shaping and overseeing governments. To promote effective citizen participation, it is necessary to create minimum conditions such as trust, political will, and openness among sectors. Through the OGP, improvements in fiscal transparency, citizen participation, and training processes have been proposed.[190] USAID/Guatemala, through Counterpart International with the project *Participacion Civica*, promoted actions to improve the Government of Guatemala's institutional capacity to develop and manage key transparency, public accountability,

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186   Guatemala 2021, Reporters Without Borders, June 14, 2022, https://rsf.org/en/analyse_regionale/565.

187   Radio y TV en Guatemala: pocas manos concentran muchas frecuencias, Plaza Pública, June 14, 2022, Five large media groups dominate radio and television in Guatemala, https://www.plazapublica.com.gt/content/radio-y-tv-en-guatemala-pocas-manos-concentran-muchas-frecuencias-19.

188   Radio y TV en Guatemala: pocas manos concentran muchas frecuencias, Plaza Pública, June 14, 2022, Five large media groups dominate radio and television in Guatemala, https://www.plazapublica.com.gt/content/radio-y-tv-en-guatemala-pocas-manos-concentran-muchas-frecuencias-19 .

189   Media organization, interview by DECA Team, December 2021, online.

190   Guatemala, Open Government Partnership, June 14, 2022, https://www.opengovpartnership.org/members/guatemala/.

and open government initiatives. [191] Transparency applications, such as those used in some municipalities in the Western Highlands, increase citizen participation in decision-making processes, and keep the public informed of key local governance issues and events. These applications are a means to put in place sound public financial systems to promote transparency and permit participation by citizens in decision making spaces.

DIGITAL SKILLS OF HUMAN RIGHTS DEFENDERS AND INDIGENOUS COMMUNITIES ARE LACKING

The digital divide in Guatemala, as detailed in Pillar 1, prevents a substantial portion of the population from unlocking the full benefits of digitalization. An interviewee from civil society expressed concern about the attacks against Indigenous communities on social media affecting their participation in the digital ecosystem, which excludes them from social and economic opportunities related to technology. Misinformation has also significantly affected Indigenous populations, undermining traditions of trust between community members. Indigenous communities are excluded from the Guatemalan digital ecosystem due in part to historical inequities.[192]

2.4 CYBERSECURITY MOVES AHEAD IN POLICY BUT REMAINS BEHIND IN PRACTICE

There have been efforts to initiate policy-level progress on cybersecurity in recent years, but not much has improved since 2016 and policy implementation remains weak. Guatemala ranks 150 out of 193 in the 2020 Global Cybersecurity Index (GCI), scoring 13.13 out of 100.[193] While low on this global index, it is on par with its regional counterparts: El Salvador (13.3), Nicaragua (9), and Honduras (2.2). For comparison, Mexico scored much higher at 81.68. The index measures the commitment of countries to cybersecurity at a global level -- to raise awareness of the importance and different dimensions of cybersecurity.

In June 2018, Guatemala launched a national cybersecurity strategy aimed at strengthening the country's "capabilities, creating the environment and conditions necessary to guarantee the participation, development, and exercise of human rights in cyberspace."[194] The National Cyber Security Strategy is the first step to establishing guidelines and objectives based on the Axis of Technological Transformation outlined in Guatemala's National Security Policy, one of the key policies defining and promoting security in the country. It allows compliance with the 2004 Resolution of the Organization of American States (OAS): "Adoption of a comprehensive inter-American cyber security strategy: a multidimensional and multidisciplinary approach for the creation of a culture of cyber security,"[195] in which the States are urged to strengthen a regional network of cooperation, coordination, and communication through the implementation of a national Computer Security Incident Response Team (CSIRT).

191   *Participación Cívica*, Counterpart International, July 27, 2022, https://pdf.usaid.gov/pdf_docs/PA00X47T.pdf.

192   Civil society organization, interview by DECA Team, February 2022, online.

193   2020 Global Cybersecurity Index (GCI). ITU. June 14, 2022, https://www.itu.int/en/ITU-D/Cybersecurity/Pages/global-cybersecurity-index.aspx.

194   *Estrategia Nacional de Seguridad Cibernética*. MINGOB. June 14, 2022, https://uip.mingob.gob.gt/wp-content/uploads/2019/03/Estrategia-Nacional-de-Seguridad-Cibern%C3%A9tica.pdf.

195   Cyber Security Strategy. OAS. June 14, 2022, https://www.oas.org/juridico/english/cyb_pry_strategy.pdf.

📖 **KEY TERMS | BOX 10:** Cybersecurity, Cyber risks, and Digital trust

Cybersecurity is the activity or process, ability or capability, or state whereby information and communications systems that support or affect development outcomes, and the information contained therein, are protected from and defended against damage, unauthorized use or modification, or exploitation.

Cyber risks are the potential for financial loss, disruption, or damage to the reputation of an individual, organization, or Government from failure, unauthorized or erroneous use, or other malicious exploitation of its information systems.

Digital Trust is created when users have confidence in an online system, network, or technology and trust that their data and privacy are being protected when using them.

CSIRT (Computer Security Incident Response Team) and **CERT** (Computer Emergency Response Team): these terms are often used interchangeably although they have slightly distinct definitions. Both refer to organizations that are responsible for coordinating and supporting the response to a computer security event or incident. They are responsible for detecting, mitigating, documenting, analyzing, reducing and reporting cyber threats and vulnerabilities. The term CERT is a was formalized by Carnegie Mellon University in 1997. Accordingly, CERTs tend to have a greater emphasis on partnership with internal or external teams and more of a focus on emerging threat research and on improving incident response as a discipline. These differences are slight and often by definition only.[196]

Source: USAID Cybersecurity Primer [197]

Guatemala's government computer security incident response team, CSIRT-gt, is under the supervision of the Ministry of the Interior and is a member of the CSIRT Americas network.[198,199] There are several cybersecurity service providers in Guatemala; most appear to be international companies like Widefense.[200] According to the 2020 OAS Cybersecurity Report, there is also a Computer Emergency Response Team (CERT) for the private sector,[201] which is run by Cyberseg.[202]

Guatemala does not yet have official legislation on cybercrime, though Legislative Initiative No. 5254 of 2017 "provides for the approval of a law against cybercrime."[203] The bill details prevention and punishment measures of cyber-related illegal acts committed using technological devices, data messages, computer systems or data. It outlines measures to protect against online exploitation, pornography and other forms of sexual abuse with minors. Legislative Initiative 5254 led to the Law to Combat Cybercrime, with the support of the OAS and the Council of Europe, which was presented in March 2017. The 2018 cybersecurity strategy highlighted the need to review the draft cybercrime law, but to date (in 2022) the law is still in draft. In April 2020, Guatemala was invited to accede to the Budapest Convention on Cybercrime with Observer status, the "first international treaty seeking to address Internet and computer crime by harmonizing national laws, improving investigative techniques, and increasing cooperation among nations."[204]

196　CERT vs. CSIRT vs. SOC: What's the difference?, July 25, 2022, https://www.techtarget.com/searchsecurity/tip/CERT-vs-CSIRT-vs-SOC-Whats-the-difference#:~:text=CSIRTs%20and%20CERTs%20focus%20specifically,a%20cross%2Dfunctional%20business%20team.

197　USAID Cybersecurity Primer. June 14, 2022, https://www.usaid.gov/digital-development/usaid-cybersecurity-primer

198　CSIRTAmericas. June 14, 2022, https://csirtamericas.org/en

199　Centro de Respuestas a Incidentes Ciberneticos. July 20, 2022, https://cric.mindef.mil.gt/

200　Widefense. June 14, 2022, https://www.widefense.com/contacto/

201　2020 IADB and OAS Cybersecurity report, June 14, 2022, https://publications.iadb.org/es/reporte-ciberseguridad-2020-riesgos-avances-y-el-camino-a-seguir-en-america-latina-y-el-caribe

202　Cyberseg, June 14, 2022, https://www.cyberseg.com/.

203　Ley contra la ciberdelincuencia - News in America. June 14, 2022, https://newsinamerica.com/pdcc/tecnologia/2020/guatemala-por-que-se-necesita-una-iniciativa-de-ley-contra-la-ciberdelincuencia/

204　Guatemala accede al Convenio sobre Ciberdelincuencia de Budapest, June 14, 2022, https://mingob.gob.gt/guatemala-accede-al-convenio-sobre-ciberdelincuencia-de-budapest/

In 2021, the Technical Secretariat of the National Security Council (STCNS in Spanish) created the National Cyber Security Committee via Government Agreement No. 200-2021, which is coordinated by the Undersecretary of State for Strategic Intelligence.[205] The committee, abbreviated as *CONCIBER* in Spanish, is an advisory body to the National Security Council charged with achieving the objectives of the National Cyber Security Strategy. Committee participants include stakeholders from MinGob, Ministry of Foreign Affairs, Ministry of Communications, Infrastructure, and Housing, GAE, and SIT.[206]

In practice, there has been little progress on policy implementation or on building cybersecurity capacity and protections. An interviewee from *INCIBE*, an organization dedicated to promoting best practices in technology and cybersecurity in Guatemala, emphasized the need to strengthen the cybersecurity ecosystem. While the creation of the cybersecurity law is necessary, without adequate support at the national level for corresponding regulation and subsequent implementation, no progress will be made. It is important that all sectors are taken into account during the development of any cybersecurity laws and regulations. According to the same interviewee from INCIBE, there were efforts in the past in which not all sectors were involved and the result was unsuccessful and what little progress has been made in terms of cybersecurity is focused on the private sector, particularly the banking sector.[207]

Cybersecurity policy implementation is not only slowed by shifting priorities and staffing delays tied to changes in administration, but also by technical capacity gaps within the government and in the cybersecurity talent pipeline. The cybersecurity strategy includes a goal to increase cybersecurity education and training across all sectors. According to a 2020 OAS report, the government has hosted training events and cyberthreat workshops including training for CSIRT-gt.[208]

> **BOX 10: Cybercrime unit receives specialized support in wake of rising cybercrime during COVID-19**
>
> During the COVID-19 pandemic in 2020, the Cybercrime Unit of the Specialized Criminal Investigation Division (DEIC) of the Guatemalan National Police recorded a 52 percent increase in online crimes. This increase highlighted both capacity and technology gaps. To remedy these gaps, the United Nations Office on Drugs and Crime for Central America and the Caribbean (UNODC ROPAN) provided support to modernize the Cybercrime Unit. UNODC provided skill-building opportunities in areas such as digital profiling, sexual crimes and cyber pedestrians, IoT, and cyberterrorism, among others.
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> *Source: UNODC*

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205 "COMITÉ NACIONAL DE SEGURIDAD CIBERNÉTICA – Secretaría Técnica Consejo Nacional de Seguridad." 2021. STCNS. https://stcns.gob.gt/comite-nacional-de-seguridad-cibernetica/."Secretaría General de la Presidencia." 2021. https://sgp.gob.gt/wp-content/uploads/2021/10/AG-200-2021.pdf.

206 "CONCIBER: Gobierno crea grupo para combatir los peligros cibernéticos." 2021. O.G.D.I. https://ogdi.org/archivos/5579.

207 INCIBE, Interview by DECA Team, December 2021, online.

208 2020 IDB and OAS Cybersecurity report, June 14, 2022, https://publications.iadb.org/es/reporte-ciberseguridad-2020-riesgos-avances-y-el-camino-a-seguir-en-america-latina-y-el-caribe

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 matches the demand and an ecosystem that promotes technological innovation.

KEY TAKEAWAYS: DIGITAL ECONOMY

FINDINGS

- Over the last decade, government entities charged with the development of the digital economy have adopted long-term policies aimed at supporting inclusive growth of the digital economy. Interviewees from the government and from other public sector entities agree that additional support is needed to ensure that these policies are implemented.

- Connectivity gaps, insufficient banking infrastructure, lack of locally adapted features in design elements of digital financial products, and low levels of digital and financial literacy in target populations are key drivers of Guatemala's low levels of digital financial inclusion. However, there may be opportunity for greater digital financial inclusion in Guatemala's high volume of remittances.

- There is unprecedented growth in the FinTech ecosystem, but their innovations do not reach the majority of the population. This is especially true for marginalized and vulnerable populations, especially the considerable proportion of the population that is unbanked.

- The startup and e-commerce ecosystems are growing, but require a more supportive policy and regulatory environment to fully reach their potential and contribute to national competitiveness.

- There is a mismatch between the digital skills supplied by Guatemala's talent pool and those demanded by local and international tech companies. This is underscored by a considerable gender and ethnic inclusion gap in the digital talent pool.

RELEVANT RECOMMENDATIONS

- Enable last-mile digital financial inclusion through public and private sector partnerships including using remittances as an entry point

- Support the growth of the tech startup ecosystem through the creation of innovation hubs

- Promote the mainstreaming of ICT skills and digital literacy at all education levels with an inclusive, market-driven approach
  (cross-cutting)

INTRODUCTION

Increased financial inclusion (including digital financial inclusion) and the development of the digital economy including through the tech startup ecosystem, e-commerce, and digital trade requires a confluence of enablers including a government-led long-term plan with clear short-term implementation actions; the existence of robust foundational digital connectivity and banking infrastructure; policies and regulations that enable easy startup and experimentation for startups and financial institutions; an attractive, relatively low-risk investment climate that promotes innovation; incentives for all types of private sector actors (large tech companies, commercial banks, FinTechs and startups) to expand digital finance offerings to meet the needs of hard to reach and marginalized and vulnerable populations; and coordination between the public and private sectors that fosters growth of the local digital talent pool. Guatemala's digital ecosystem shows early signs of progress in all of these elements. However, progress on policy implementation is unclear and much of the innovation and progress seen through the growth of tech startups, and FinTechs specifically, occurs without much of the country's marginalized and vulnerable populations—specifically women, Indigenous peoples, and youth.

3.1 NATIONAL POLICIES SUPPORT INCLUSIVE GROWTH OF THE DIGITAL ECONOMY, IN DESIGN

Over the last decade, the Government of Guatemala (GoG) adopted various long-term policies with provisions aimed at supporting the digital economy. In 2015, the Minister of Economy (MINECO) enacted the National Entrepreneurship Policy 2015-2030 (known as *Guatemala Emprende*) and the National Council on Science and Technology (CONCYT) and National Secretariat of Science and Technology (SENACYT) adopted the National Scientific and Technological Development Policy 2015-2032. Both policies have about a 15-year scope for deploying science, technology, and entrepreneurship programs to improve livelihood and development conditions in Guatemala. They include elements intersecting with multiple dimensions of the digital economy such as inclusion, human capital, startups, and innovation. The National Entrepreneurship Policy includes five priority areas for increasing entrepreneurial activity in response to emerging economic changes: 1) industry support; 2) financing; 3) institutional developments; 4) mentality and culture; and 5) educational system.[209] The National Scientific and Technological Development Policy addresses the need to enhance human capital levels and research and development investments to advance innovation and technological deployments.[210]

These policies received support from both the public and private sectors in recent years. Guatemala's Congress passed a Law on Entrepreneurship Strengthening in 2019, with the objectives of setting a broader legal framework for innovation, education, and technology programs to increase national levels of entrepreneurship.[211] In the same year, Guatemala's Central Bank (*Banguat*), MINECO, and the *Superintendencia de Bancos* (SIB) launched the National Financial Inclusion Strategy 2019 - 2023 (ENIF). A year later, MINECO launched a national entrepreneurship network with the aim of coordinating nine entrepreneurship networks integrated by 180 public and private sector actors across Guatemala.[212] These actors include entities like Antigua Guatemala's Impact Hub, Guatemala's branch of a global network of entrepreneurs and investors recognized for their role in supporting startups and developing new businesses with social impact. In parallel, SENACYT launched the Alliance for Science, Technology, and Innovation Development (Alliance CTi).[213] Other complementary policies include the National Digital Agenda 2016-2032 (*Agenda Nación Digital*), which was developed by SENACYT and other institutions (see Pillar 1 for additional details),[214] and the National Competitiveness Policy 2018-2032 adopted by MINECO.[215]

Guatemala's current government administration used the National Plan on Innovation and Development (PLANID) as the framework for the president's candidacy. After taking office, his administration began to implement it during the months before the COVID-19 pandemic hit Guatemala. One of PLANID's pillars addresses six strategic objectives to increase Guatemala's levels of economic growth, competitiveness, and prosperity. These objectives place a particular emphasis on supporting the digital economy through investments in digital talent and institutional actions that enhance the capabilities of investment facilitation entities such as the National Competitiveness Program (PRONACOM) and Invest in Guatemala. PLANID also stresses

209 "*Política Nacional de Emprendimiento: Guatemala Emprende*," *Ministerio de Economía,* 2019. https://www.mineco.gob.gt/sites/default/files/Politica Emprendimiento.pdf

210 "*Política Nacional de Desarrollo Científico y Tecnológico 2015 - 2032*," Secretaría Nacional de Ciencia y Tecnología, 2017. http://ecursos.segeplan.gob.gt/CAPP/documentos/70/PoliticaNacionaldeDesarrollo C y T (21062017).pdf

211 "Reglamento de la Ley de Fortalecimiento al Emprendimiento: Acuerdo Gubernativo Número 49 - 2019," Ministerio de Economía, 2019. https://sgp.gob.gt/wp-content/uploads/2019/03/AG-049-2019.pdf

212 "MINECO lanza red nacional de emprendimiento," Ministerio de Economía, March 5, 2020. https://www.mineco.gob.gt/mineco-lanza-red-nacional-de-emprendimiento

213 "Alianza para el desarrollo de la ciencia, la tecnología y la innovación en Guatemala," Secretaría Nacional de Ciencia y Tecnología, October 18, 2021. https://www.senacyt.gob.gt/portal/index.php/component/sppagebuilder/23-alianza-cti

214 Agenda Nación Digital 2016-2032 (Digital Nation 2016-2032). https://latinno.net/en/case/10165/.

215 "*Política Nacional de Competitividad 2018 - 2032*," Programa Nacional de Competitividad de Guatemala, 2018. http://www.pronacom.gt/contenido/proyectos_agenda_nacional_de_competitividad/.

developing incentives to attract foreign investment in information, communications, and technology (ICT) sectors and enabling Guatemalan businesses, in particular micro-, small- and medium-sized enterprises (MSMEs), to reach new markets through e-commerce, technological innovation and vocational training in digital capabilities.[216]

Despite the fact that Guatemalan public and private sector institutions have delivered regulations in support of the digital economy, they require long-term international support in the form of technical assistance and capacity building to sustain policy enforcement and implementation according to interviewees from MINECO, the National Foundation for Development (*FUNDESA*) and *AGEXPORT* who emphasized the role international cooperation can have in providing institutional support to address existing implementation gaps.[217]

BOX 11: Key government agencies behind the development of the digital economy

There are two key government institutions guiding policy development and implementation for Guatemala's digital economy, which were established under the Law on Promotion of Scientific and Technological Development (Decree 63-91).[218]

The first entity created was the National System on Science and Technology (SINCYT), which serves as a platform to involve actors from academia, the government, and the private sector in science and technology policymaking and implementation efforts. This led to the development of the National Council on Science and Technology (CONCYT),[219] is the official governing body on scientific and technology matters and involved a range of actors including the Vice-President, Minister of Economy, President of the Congressional Committee on Science and Technology to represent the public sector; Presidents of the Chambers of Industry, Agriculture, and Commerce as representatives from the private sector; and actors representing various academic institutions.

The second institutional development was the creation of the National Secretariat of Science and Technology (SENACYT) with the mandate of implementing and following up on decisions adopted by CONCYT members. Since 2006, a representative from SENACYT has been participating in CONCYT meetings following Congress's enactment of the Reform to the Law of Scientific and Technological Development (Decree 38-2006).[220]

Operational activities led by CONCYT and SENACYT are supported by other specific regulations, technical commissions, and national funds. These include the National Science and Technology Fund (FONACYT),[221] the Support Fund for Science and Technology (FACYT), the Scientific and Technological Development Fund (FODECYT),[222] and the Multiple Support Fund for the National Science and Technology Plan (MULTICYT).[223]

FINANCIAL INCLUSION POLICY APPROACHES ITS END DATE

In 2019, *Banguat*, MINECO, and SIB launched the National Financial Inclusion Strategy (ENIF) that extends through 2023. The strategy aims to expand and enhance the access and use of financial products, specifically targeting the needs of the unbanked. The Office of Technical Assistance of the U.S. Department of the Treasury

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216   "Plan Nacional de Innovación y Desarrollo (PLANID): Dr. Alejandro Giammattei - Presidente 2020-2024," Vamos Guatemala, 2019. https://vamosguatemala.com/wp-content/uploads/2019/03/Alejandro_Giammattei_Plan_Nacional_de_Innovacion_y_Desarrollo.pdf

217   Government representative, interview by DECA Team, February 2022, online; Civil society organization, interview by DECA Team, January 2022, online; Civil society organization; interview by DECA Team, January 2022, online.

218   "Decreto Legislativo N° 63/1991. Ley de Promoción de Desarrollo Científico y Tecnológico Nacional,"Congreso de la República de Guatemala, 1991. https://siteal.iiep.unesco.org/sites/default/files/sit_accion_files/gt_3040.pdf

219   "Consejo Nacional de Ciencia y Tecnología -CONCYT-," Vicepresidencia del Gobierno de Guatemala, October 20, 2021. https://vicepresidencia.gob.gt/Consejo-Nacional-de-Ciencia-y-Tecnologia-CONCYT

220   "Decreto Número 38-2006: Reforma a la Ley de Promoción del Desarrollo Científico y Tecnológico Nacional," Congreso de la República de Guatemala, 2006. https://www.senacyt.gob.gt/portal/attachments/legislacion/01-1-ReformaALeyPromocionCT_cambiaArt32.pdf

221   "FONACYT." n.d. December 9, 2022. https://fondo.senacyt.gob.gt/portal/.

222   There is not a specific website for this fund but it has been mentioned on three sites: See INCAP, Universidad Galileo and SENACYT for more information.

223   There is not a specific website for this fund but it has been mentioned in a SENACYT report.

(OTA) alongside the World Bank, the International Monetary Fund, and the Inter-American Development Bank provided technical assistance during the ENIF formulation process.[224]

The Strategy encompasses four strategic areas. The first focuses on actions enabling modern, secure, and trustworthy payment means available to Guatemalans. The second aims to expand financing mechanisms and credit products that are backed by unconventional guarantees and based on integral credit information systems. The third stresses the development of savings products and services. The fourth intends to increase and deepen the reach and coverage of distribution and diversification channels of insurance services, as well as to develop new insurance products. ENIF includes three cross-cutting areas aimed at fostering financial education: consumer protection; social communication on financial inclusion strategies; and entrepreneurship and small business development.[225] The Strategy mentions the importance of promoting greater digitalization of payments and of optimizing the use of technological advancements including doing so within a legal and regulatory framework that balances risk mitigation and innovation promotion, a note regarding the widespread use of the electronic signature, and the promotion of a comprehensive framework for developing FinTech.

With the ENIF implementation period nearing its end date and no clear reports on implementation tracking, an interviewee from SIB noted that coordinating actors could potentially discuss an update to the strategy by extending its timeline of actions. This could provide an opportunity for national authorities to assess progress and address gaps in a potential new strategy for the years to come.[226]

Having a long-term national financial inclusion strategy is pivotal to bridge financial inclusion divides. As pointed out by an interviewee from Tigo Money, collaboration between the public and private sector around actionable objectives in national financial inclusion strategies needs to continue and expand to enable financial service providers (FSPs) to innovate in their business models and strategies to reach underserved regions and population segments.[227] An interviewee from the *Superintendencia de Bancos* (SIB) further stressed that a revised financial inclusion strategy requires additional efforts in designing and monitoring indicators that better capture existent financial inclusion gaps.[228]

3.2 DIGITAL FINANCE: SOPHISTICATION AND INCLUSION ARE DIVERGING

While a large portion of the Guatemalan population remain unbanked and do not use digital financial services, there is a growing number of digital financial providers and service offerings. This mismatch has concerning implications for the inclusion of more vulnerable and marginalized groups, especially in rural areas including women and Indigenous peoples.

BRIDGING FINANCIAL DIVIDES IS A LONGSTANDING CHALLENGE

Over the past decade, Guatemala made moderate progress bringing the unbanked into the formal financial sector. According to the World Bank Global Findex, in 2011, 21 percent of the population 15 years or older had a bank account at a formal financial institution. By 2017, this number doubled, reaching 44 percent of the population. Guatemala lags behind the Latin American region and remains one of the least banked of its

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224   "Estrategia Nacional de Inclusión Financiera, Guatemala 2019-2023," Superintendencia de Bancos, 2019, https://www.sib.gob.gt/web/sib/ENIF/Guatemala

225   "Estrategia Nacional de Inclusión Financiera, Guatemala 2019-2023," Superintendencia de Bancos, 2019, https://www.sib.gob.gt/web/sib/ENIF/Guatemala

226   Anonymous, interview by DECA Team, January 2022, online.

227   Financial service provider, interview by DECA Team, December 2021, online.

228   Anonymous, interview by DECA Team, January 2022, online.

neighbors. On average, in 2017 54 percent of adults 15 years or older across the region had access to a bank account; Costa Rica, Panama, and Honduras all have larger banked populations than Guatemala (Figure 11). The World Bank released the latest Findex in June 2022, however, Guatemala data was not included.[229]
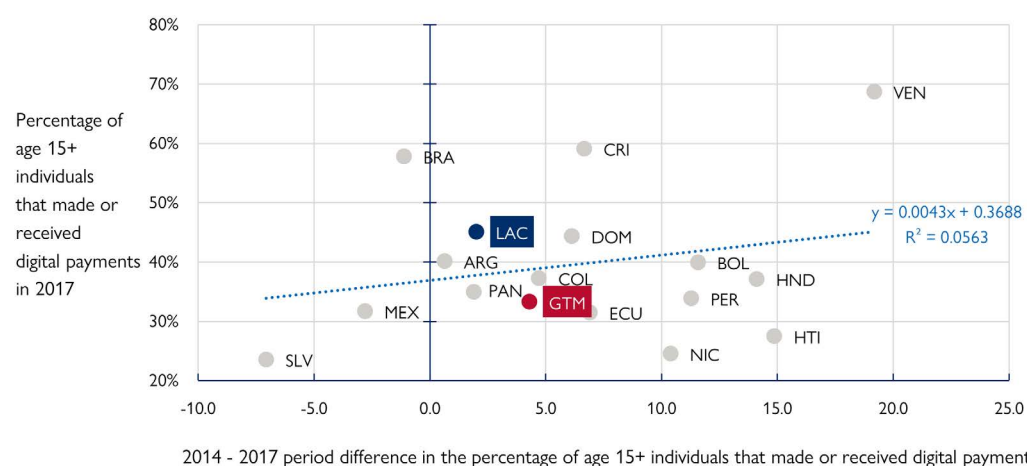
**FIGURE 12. Guatemala lags behind other LAC countries in banking**
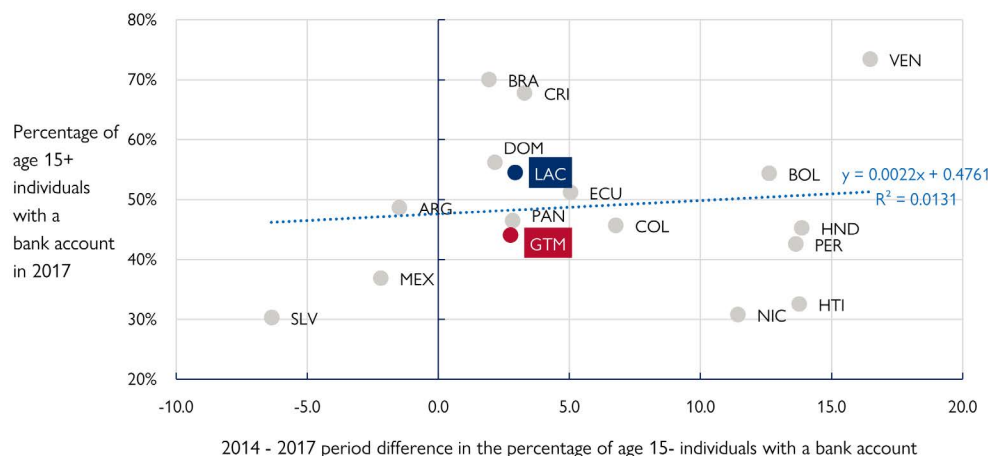
Notes: a) Countries included are those from the Latin America and the Caribbean (LAC) region for which data is available in the Global Findex Database; b) 2021 figures were not included because not all LAC countries reported them in the latest update of the Global Findex Database; c) LAC aggregated data point excludes high-income countries from the region. Source: The Global Findex Database 2021, World Bank

When it comes to digital financial inclusion, Guatemala is behind its neighbors and has made little progress in recent years. In 2014, 26 percent of the population 15 years or older made or received a digital payment. Three years later, that number had only increased by seven percentage points, with one-third of the adult population having made or received digital payments in the past year (Figure 14). Only 2 percent of Guatemalans report having a mobile money account, compared to 4 percent in El Salvador and 6 percent in Honduras.[230]

FIGURE 13. Guatemala lags behind other LAC countries in digital finance offerings

Notes: a) Countries included are those from the Latin America and the Caribbean (LAC) region for which data is available in the Global Findex Database; b) 2021 figures were not included because not all LAC countries reported them in the latest update of the Global Findex Database; c) LAC aggregated data point excludes high-income countries from the region. Source: The Global Findex Database 2021, World Bank

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229   "The Global Findex Database 2017," World Bank, 2017. https://globalfindex.worldbank.org/. Launched by the World Bank in 2011, the Global Findex is a comprehensive dataset on how people use financial services. The data are collected every three years, with the most recent round of data collection completed in 2017. The COVID-19 pandemic delayed efforts to collect and publish more recent data. Although the most recent Findex was released in June 2022, it did not include data for Guatemala.

230   Anonymous interviewee, interview by DECA Team, December 2021, online.

Despite being behind most of its regional counterparts in terms of digital financial inclusion, Guatemala has the smallest urban-rural gap in terms of digital payments use. In 2017, 31 percent of adults living in rural Guatemala made or received digital payments in the past year, compared to 33 percent of Guatemalans on average (Figure 15).[231] Guatemalans living in rural areas use digital payments more frequently than people who live in rural areas across Central America, aside from Costa Rica. According to an interviewee from the Inter-American Development Bank (IDB), FSPs find it challenging to make their digital financial service offerings accessible to rural areas because of the lack of high quality internet connectivity, electricity, and other essential social services for deploying digital business models, which was reiterated by an interviewee from PayPal Guatemala[232] who added that non-bank institutions such as PayPal face constraints linking bank accounts to digital finance accounts and reaching individuals and businesses that operate in the informal economy and offline.[233]

FIGURE 14. Urban - Rural digital payments use divide, 2017
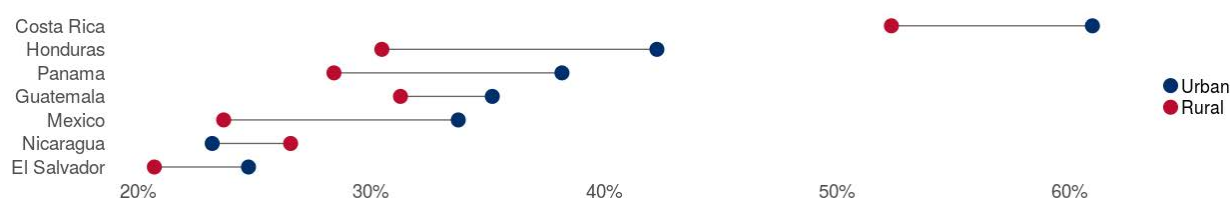
Source: The Global Findex Database 2021, World Bank

Similarly, men generally use digital payments more frequently, the gender gap in Guatemala in 2017 digital payments use is the smallest in the region. 32 percent of women as compared to 35 percent of men made or received digital payments in 2017. More women in Guatemala use digital payments than in most countries in the region (Figure 16).[234] However, there is still a need for Guatemala to make progress in closing its gender gap in digital finance. An interviewee from UN Women emphasized that women tend to be more affected by poverty and lack of educational opportunities in Guatemala, which places them at a disadvantage in gaining access to digital financial services and related means for employment and entrepreneurship.[235]

FIGURE 15. Gender digital payments use divide, 2017
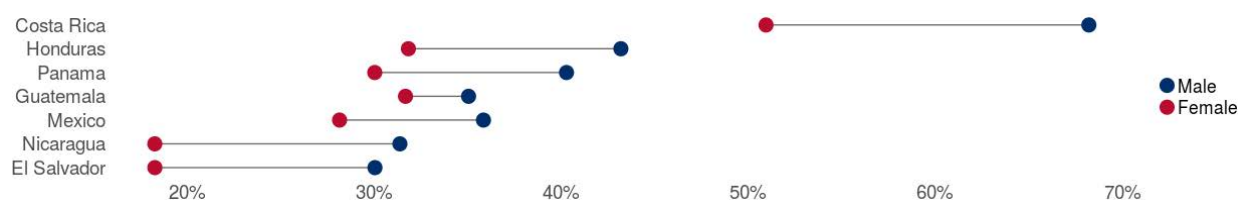
Source: The Global Findex Database 2021, World Bank

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231   Anonymous interviewee, interview by DECA Team, December 2021, online.

232   International organization, interview by DECA Team, December 2021, online.

233   Anonymous interviewee, interview by DECA Team, December 2021, online.

234   "The Global Findex Database 2017," World Bank, 2017. https://globalfindex.worldbank.org/

235   International organization, interview by DECA Team, January 2022, online.

REMITTANCES REMAIN DOMINATED BY NON-DIGITAL TRANSFERS

In 2021, remittances accounted for about 18 percent of Guatemala's GDP, compared to 24 percent in El Salvador and Honduras, 15 percent in Nicaragua, and 4 percent in Mexico.[236] Figure 17 below shows the growth of remittances as a percent of GDP over the last ten years. In terms of value, Guatemala accounts for the largest share in Central America (Belize, Costa Rica, Dominican Republic, El Salvador, Honduras, Nicaragua, Panama), which in 2021 was about USD $15 billion compared to about USD $7 billion for El Salvador and Honduras each. According to the Inter-American Dialogue, the number of monthly transactions from the United States to Guatemala increased from 760,000 in 2015 to 950,000 in 2019, with a quarter of transactions relying on digital payment methods.[237,238] The COVID-19 pandemic had only a short-term impact on remittance volumes in Guatemala. Guatemala continues to experience steady and rapid growth with monthly volumes reaching USD $1,388 million in August 2021 (as reported by the Bank of Guatemala).[239]

Over the last 10 years, remittance service providers to Guatemala diversified to include some FinTechs. Traditional money transfer operators like Western Union and MoneyGram also introduced online platforms that enable credit and debit card and bank account transfers. However, based on a June 2021 IMF study, remittances going to Guatemala are mainly coming from physical locations (not online platforms) and the use of digital platforms for remittances transfer only comprises 0.3 percent of the total number of transfers. Recipients also have not adopted the use of digital platforms, with 89 percent of remittances being received via cash payout. This is further exemplified by the fact that despite collaborating with eight major remittance service providers, Tigo Money (one of the major mobile money providers in Guatemala), represents just two percent of total remittance inflows in Guatemala.[240]

FIGURE 16. Personal remittances received (percent of GDP), 2010-2020
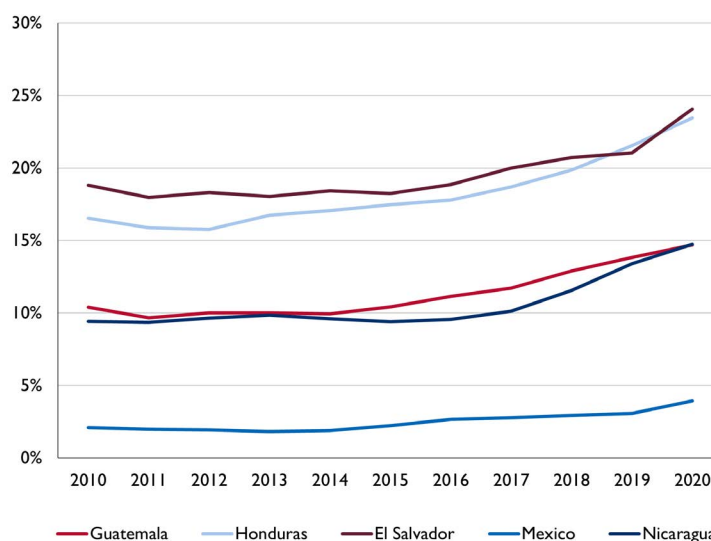
Source: World Bank Data Bank

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236   "Remittances Data: Remittance inflows," Global Knowledge Partnership on Migration and Development (KNOMAD), July 3, 2022. https://www.knomad.org/data/remittances

237   Manuel Orozco, Kathryn Klaas, and Nicole Ledesma, "The Remittance Marketplace in 2019: The Growing Role of Digital Payments," The Dialogue, March 2020. https://www.thedialogue.org/wp-content/uploads/2020/03/Remittance-Marketplace-in-2019_Growing-role-of-digital-payments-3.pdf

238   "Migration, the Economy and Remittances in Central America", Creative Associates, March 2021. http://www.creativeassociatesinternational.com/wp-content/uploads/2021/04/Migration_the_Economy_and_Remittances_in_Central_America.pdf

239   "Guatemala Remittances - November 2022 Data - 1990-2021 Historical - December Forecast." n.d. Trading Economics. December 9, 2022. https://tradingeconomics.com/guatemala/remittances.

240   Julia Bersch, Jean François Clevy, and Naseem Muhammad, "FinTech Potential for Remittance Transfers: A Central America Perspective," International Monetary Fund (IMF), IMF Working Paper WP/21/175, 25 June, 2021. https://www.elibrary.imf.org/view/journals/001/2021/175/article-A001-en.xml

CHALLENGES TO DIGITAL FINANCIAL INCLUSION: CONNECTIVITY, LANGUAGE, LITERACY

As outlined in the May 2020 MIT D-Lab Assessment of Digital Payments for Smallholder Farmers in the Western Highlands region, local context and user preferences are key to designing and piloting inclusion-oriented digital financial services.[241] Various demographic, geographic, and sociocultural barriers hold back greater adoption and use of digital financial inclusion. DECA Focus Group participants noted that staff members of financial entities do not speak the dialects used by individuals in the Western Highlands. Other highlighted challenges include lack of knowledge on digital financial services, and remoteness in reaching the physical presence of financial institutions. Some efforts are being carried out by government and private sector actors aimed at addressing these challenges, such as the 2019 - 2023 National Financial Inclusion Strategy. Guatemala's current financial inclusion strategy aims to bridge financial inclusion constraints by strengthening financial education programs, consumer protection institutions and regulations, and enabling conditions for higher supply of financial activities.[242]

> ### 📖 KEY TERMS | BOX 11: Agent Banking
>
> The agent banking model lowers the cost of reaching marginalized, formerly unbanked populations. Agents can provide financial services to consumers in areas where banks do not have sufficient incentive or capacity to establish physical branches or ATMs.
>
> Agents can take many forms, including individuals at small shops, petrol stations, and supermarkets, among others. Financial services provided by agents can include cash-in, cash-out points; credit; loans; insurance; bill payment; and person-to-person transfers, among others.

In addition to the challenge of insufficient internet connectivity gaps in the banking infrastructure are an impediment to greater DFS uptake. There has been substantial expansion of agent networks across Guatemala in the past few years, but access in areas with greater percentages of Indigenous populations and in rural areas is still insufficient. According to the latest quarterly report published in March 2022 by the SIB, there are a total of 26,245 financial access points, 73 percent of which are agent banks, 11 percent are bank branches, and 16 percent are ATMs. The number of financial access points has almost doubled since March 2020 when there were only around 10,000 and all of this growth has been driven by an increase in agent banks.[243] From an inclusion standpoint, the more important indicator is the number of financial access points per ten thousand adults. On average in Guatemala, there are approximately 24 financial access points per 10,000 adults. The departments that fall below this average and therefore where enabling infrastructure for financial inclusion and opportunities for digital financial inclusion are lower include: *Alta Verapaz*, *Chimaltenango*, *Huehuetenango*, *Jalapa*, *Quiche*, *Sacatepéquez*, *San Marcos*, and *Totonicapán*. These are areas as well that experience lower broadband coverage and have higher densities of Indigenous populations (Figure 18, 19). An interviewee from *Banrural* noted that the bank is investing in increasing its agent network in municipalities where individuals have not had a chance to open a bank account or receive guidance for acquiring a digital financial service.[244]

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241   Cauam Cardoso and Jonars Spielberg, "Assessment of Potential Opportunities for Use of Digital Payments for Smallholder Farmers in Guatemala's Western Highlands," United States Agency for International Development and MIT D-Lab, April 2020. https://d-lab.mit.edu/resources/publications/assessment-potential-opportunities-use-digital-payments-smallholder-farmers

242   "Estrategia Nacional de Inclusión Financiera para Guatemala, ENIF 2019 - 2023," Superintendencia de Bancos, August 2019. https://www.sib.gob.gt/web/sib/ENIF/Guatemala

243   "Boletín Trimestral de Indicadores de Inclusión Financiera No. 34," Superintendencia de Bancos, March 2022. https://www.sib.gob.gt/web/sib/Boletin-Trimestral-de-Inclusion-Financiera?p_p_id=110_INSTANCE_QUh1&p_p_action=0&p_p_state=maximized&p_p_mode=view&p_p_col_id=column-2&p_p_col_pos=1&p_p_col_count=3&_110_INSTANCE_QUh1_struts_action=%2Fdocument_library_display%2Fview&_110_INSTANCE_QUh1_folderId=8099446
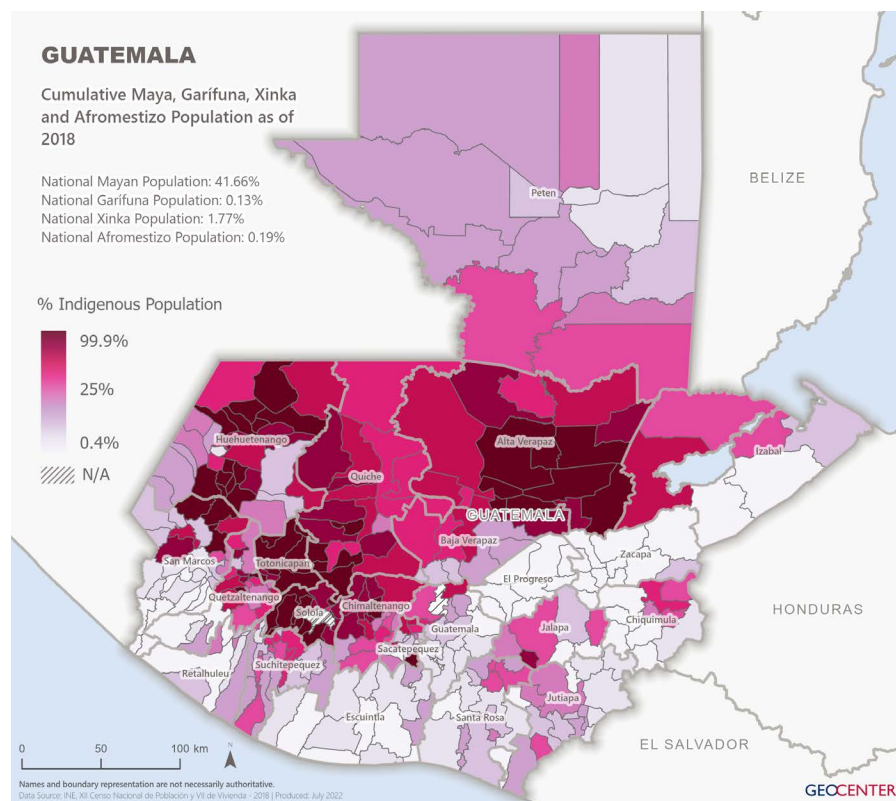
244   Financial service provider, interview by DECA Team, December 2021, online.

FIGURE 17. Financial access points per 10,000 adults, 2022
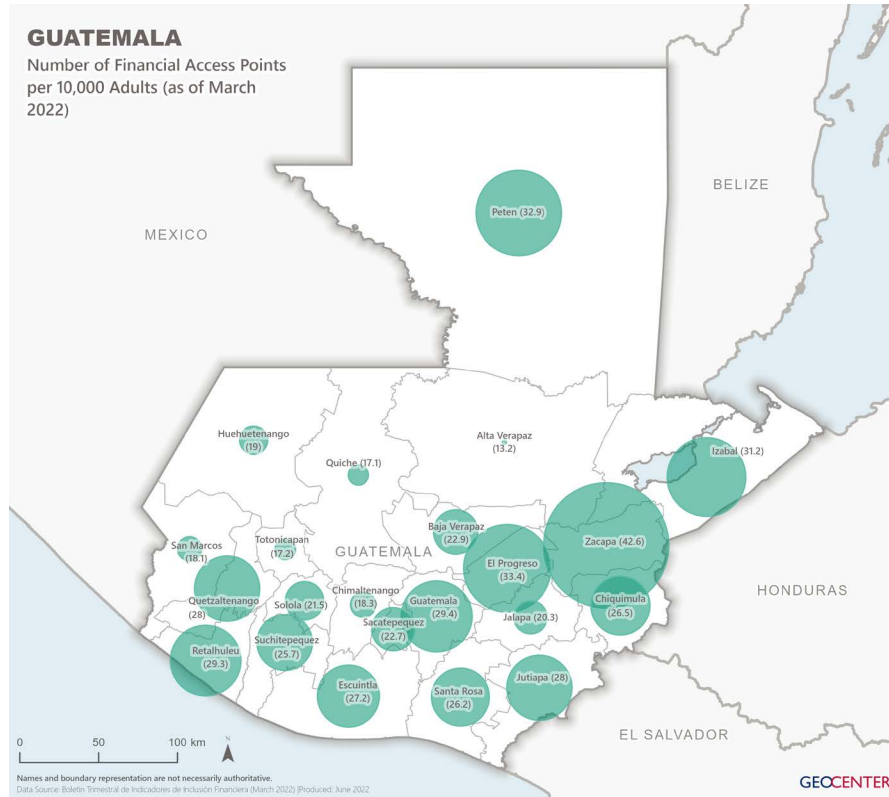
FIGURE 18. Linguistic map, 2018
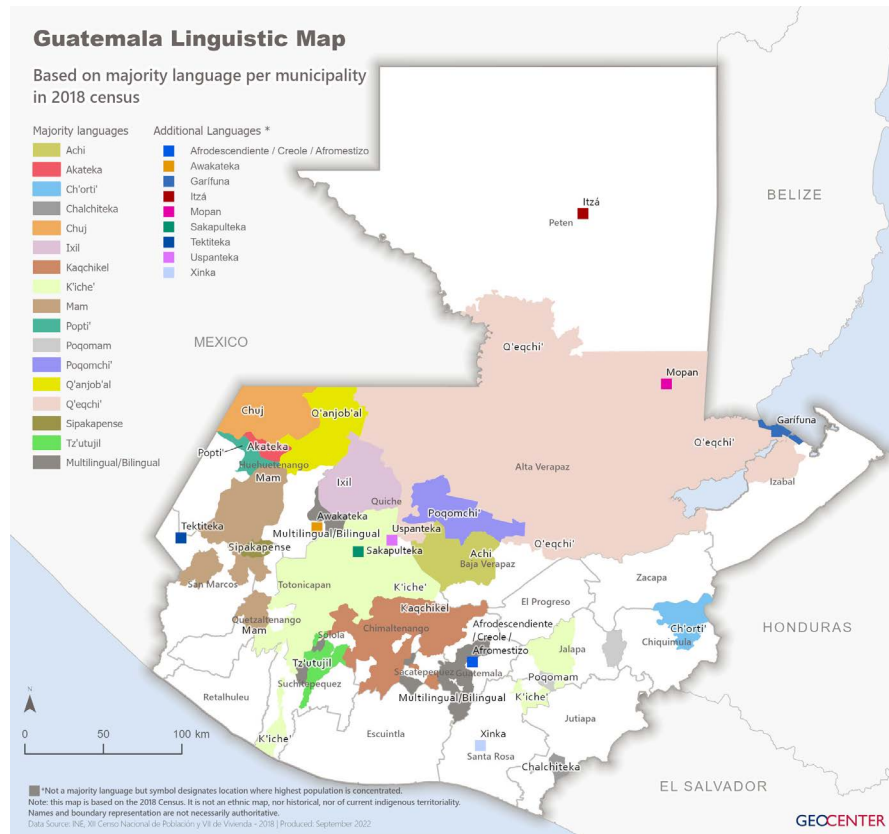
FIGURE 19. Indigenous population density map, 2018

Although Spanish is the official and most commonly spoken language, Guatemala is home to 22 Mayan languages as well as *Garífuna* and *Xinca* (Figure 19). It can be challenging for FSPs to reach populations that do not speak or are not literate in Spanish. Guatemala's linguistic diversity requires FSPs to tailor their products and approaches to truly be inclusive. An interviewee from *Banrural* said that they are seeking to hire more staff that speak local dialects as a strategy for supporting this population segment to use their digital financial services offerings.

Low financial literacy is a major barrier to increased and sustained uptake of digital financial services. Financial inclusion lags behind digital inclusion in Guatemala. While customers may have some level of digital skills and may own a mobile phone, they may be less skilled when it comes to financial literacy. This is especially true for harder to reach customer segments that are traditionally excluded from the formal banking system such as women and Indigenous populations. As a means of remedying this challenge, the SIB is carrying out social awareness campaigns and offering e-learning training to increase financial literacy in regions with higher proportions of individuals and households that do not use digital financial services.[245] An interviewee from Tigo Money added that they are deploying technological tools for streamlining the accessibility of services for population segments that do not have financial education or knowledge.[246]

To ensure coherence on actions aimed at bridging financial inclusion gaps, interviewees from public and private sector institutions stressed the need for updated financial inclusion strategies. According to an interviewee from the SIB, official sources do not compute financial indicators that capture all the dimensions of Guatemala's financial inclusion gaps, including digital.[247]

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245   Anonymous, interview by DECA Team, January 2022, online.

246   Financial service provider, interview by DECA Team, December 2021, online.

247   Anonymous, interview by DECA Team, January 2022, online.

BOX 12: Government response to COVID-19 protects economy and boosts digital payments through digital cash transfers

The Government of Guatemala acted quickly to protect the economy and focus on providing support to the most poor and vulnerable in the face of the COVD-19 pandemic. According to the World Bank, the COVID-19 pandemic was expected to increase the poverty rate in Guatemala from 47.8 percent in 2019 to 52.4 percent in 2020. Recent estimates show that this increase would have been closer to two or three times greater if it were not for the government's responsive action.[248] This was done through the quick expansion of its cash transfer program through the creation of the *Bono Familia* program, which increased the number of government-to-person (G2P) direct beneficiaries from 160,000 to 2.8 million and disbursed a total of USD $780 million (1,000 *quetzales* or USD $134 per family).[249,250]

The program was designed over the course of just 15 days by a multi-stakeholder group including the Ministry of Development (MIDES), Ministry of Finance, 11 banks, two ATM networks, VisaNet Guatemala, and BAC Credomatic. The program prioritized people living in poverty, single mothers, older adults, persons with disabilities, and those suffering with chronic diseases. Eligibility for the *Bono Familia* program was based on household electricity consumption, targeting all households with electric power consumption below 200 kW as of February 2020.[251] Pre-screened beneficiaries were required to register with their national ID card and their phone number. Once their eligibility was confirmed, beneficiaries received a 16-digit code via text, which gave them access to the VisaDirect payment platform where they could instantly access their funds in an already created "simplified digital bank account." Beneficiaries could either cash out at bank branches or ATMs or spend the funds at any merchant accepting Visa cards. The latter promoted the use of digital payments for marginalized and vulnerable previously unbanked families across the country.

The solution was lauded as being interoperable, transparent, secure and auditable and an unprecedented example of many actors from the financial sector working together to apply digital technologies to optimize financial support to Guatemalans in the most need.[252,253] While *Bono Familia* was a supportive government response to contain the adverse socio-economic impacts of COVID-19 in Guatemala, it had some deficiencies according to analyses from civil society organizations. A study conducted by the Center for National Economic Research (CIEN) found that *Bono Familia's* design did not select beneficiaries under a criteria aligned with the targeted problem—supporting families directly impacted by the COVID-19 pandemic.[254]

DIGITAL FINANCE PROVIDERS ARE GROWING AT AN INCREASING PACE

Guatemala's financial sector grew rapidly in recent years. Banking institutions expanded their physical presence and new actors entered the market. Neither the COVID-19 pandemic nor operational shifts in the financial sector hampered this dynamism. An interviewee from *Banco Industrial* said that telecom companies and financial sector providers increased investments in digital technologies in response to a rising demand for digital financial services.[255] FinTech stands out as a highly dynamic sector with accelerating entrepreneurial and innovative activity, according to an interviewee from the Inter-American Development Bank (IDB).[256]

248 "The World Bank in Guatemala: Overview," World Bank, May 15, 2022. https://www.worldbank.org/en/country/guatemala/overview#1
249 "Global Microscope 2020: The role of financial inclusion in the Covid-19 response," Economist Intelligence Unit, 2020. https://pages.eiu.com/rs/753-RIQ-438/images/EIU_Microscope_2020_proof_10.pdf
250 "The Road to Digital Government Payments: A guide to improve efficiency, transparency and financial inclusión through Government-to-Citizen payments (G2C)," Visa, 2020. https://www.visa.com.bs/dam/VCOM/regional/lac/ENG/Default/Documents/PDFs/G2C-01.pdf
251 "Presentación de PowerPoint." 2020. socialprotection.org |. https://socialprotection.org/sites/default/files/publications_files/e-conference%20Presentation%20-%20Guatemala.pdf.
252 "The Road to Digital Government Payments: A guide to improve efficiency, transparency and financial inclusión through Government-to-Citizen payments (G2C)," Visa, 2020. https://www.visa.com.bs/dam/VCOM/regional/lac/ENG/Default/Documents/PDFs/G2C-01.pdf
253 "*Bono Familia: el programa modelo durante 2020*," Ministerio de Desarrollo Social, October 25, 2021. https://guatemala.gob.gt/bono-familia-el-programa-modelo-durante-2020/
254 "Análisis del Fondo Bono Familia," Centro de Investigaciones Económicas Nacionales, December 2020. https://cien.org.gt/wp-content/uploads/2020/12/Documento-Analisis-Fondo-Bono-Familia.pdf
255 Banco Industrial, interview by DECA Team, December 2021, online.
256 Inter-American Development Bank, interview by DECA Team, December 2021, online

According to the SIB, from March 2019 to December 201, banking institutions expanded their nationwide presence by 72 percent, increasing the number of financial access points (e.g, ATMs, bank branches, banking agents) from 14,502 to 24,905. The COVID-19 pandemic did not hamper this pace. By the end of 2021, banking agents accounted for 72 percent of all access points, up from 52 percent just two years before (see Key Term Box 12 above, which explains agent banking).[257]

Traditional banking alone has not experienced this growth. FinTech companies expanded tremendously in recent years. According to the Guatemalan FinTech Association, the FinTech industry more than quadrupled in size between 2017 and 2021, expanding at an annual growth rate of 54 percent.[258] Currently, Guatemala has 47 FinTech firms, out of which 21 percent provide remittances and mobile wallet services and 19 percent offer digital credit accounts.[259] Over the next five years, the industry expects to add an additional 60 new FinTech businesses.[260]

Guatemala's financial landscape is also home to a number of savings and credit cooperatives. *Micoope,* a co-op organization headquartered in Guatemala City, offers financial services in 22 cities across the country. It operates 25 savings and credit cooperatives with 2 million members served by 292 agencies at the national level. *Micoope* members have access to 275 *Micoope* agents and 132 automated teller machines.[261]

BOX 13: Spotlight on Guatemala's FinTech Association

Asociación FinTech Guatemala (AFG) brings together 31 FinTech, 15 strategic partners, and 14 allies with the objective of building an inclusive digital finance ecosystem in Guatemala. As an industry advocate, AFG touts Guatemala's enabling environment to attract international investment in both its financial partners and burgeoning talent pool. It also works with regulatory authorities in Guatemala to promote a conducive policy environment for the sector's continued growth.

AFG's membership has increased rapidly over the past five years. Membership expanded from 6 members in 2017 to 31 members in 2021, reflecting an industry growth of 417 percent during the period. Between 2018 and 2021, seven new FinTech enterprises on average started operations each year.

Guatemalan FinTech companies have about 200,000 clients in total, ranging from unbanked individuals and microenterprises to banked consumers and small businesses to large corporations and other financial entities. More than half of the FinTech Companies have business-to-business (B2B) models while the remaining follow business-to-consumer (B2C) models.

Most FinTech firms offer a service portfolio that includes digital payments and credit and business financial management. Other firms offer a multiplicity of financial services and focus on insurance services. A lower fraction offer technologies for financial institutions, crowdfunding platforms and services related to financial assets and capital markets.

Source: Asociación FinTech Guatemala, 2021.

DIGITAL PAYMENT APPS ARE BECOMING SOPHISTICATED IN RESPONSE TO GROWING DEMAND

Guatemala's digital financial services space is booming. According to Statista, Guatemala has the largest market of FinTech users in Central America as of 2022. In 2021, 6.3 million digital payment users resided in Guatemala,

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257 "Boletín Trimestral de Indicadores de Inclusión Financiera No. 33," Superintendencia de Bancos de Guatemala, December 2021. https://www.sib.gob.gt/c/document_library/get_file?folderId=9309235&name=DLFE-38702.pdf

258 "Panorama FinTech GT 2021," *Asociación FinTech Guatemala*, 2021.

259 "El sector FinTech de Guatemala dice manos a la obra," *Asociación FinTech Guatemala*, July 16, 2021. https://www.guatemalaFinTech.com/post/el-sector-FinTech-de-guatemala-dice-manos-a-la-obra

260 "Guatemala tendrá 60 FinTechs en los próximos 5 años: AFG," Forbes, February 8, 2021. https://forbescentroamerica.com/2021/02/08/guatemala-tendra-60-FinTechs-en-los-proximos-5-anos-afg/

261 "*Sistema Cooperativo Micoope*," *Micoope*, March 27, 2022. https://www.micoope.com.gt/sistema-micoope/

generating USD $3.2 billion in transactions. The region's second largest market, Costa Rica, had less than half that—3.17 million digital payment users in 2021.[262]

Financial providers leverage this demand to innovate across a range of services. Users in Guatemala can send and receive digital payments and remittances, common in South and Central American markets, and also have access to leasing, crowdfunding, and asset management services from a digital platform. The increased popularity of digital finance catalyzed the development of new online platforms and apps. An interviewee from *Banco Industrial* noted that digital finance apps in Guatemala are more sophisticated than those in neighboring countries as they tend to incorporate unique features that similar apps in neighboring countries do not have.[263] Examples include KashPak (a mobile payment app), Novi (a mobile payment app offered by Facebook), and Tigo Money.

BOX 14: Tigo Money is a popular app for digital finance and remittances

Tigo Money is a mobile money app that enables users to purchase credits for making calls, paying bills, receiving remittances and sending money abroad. It was introduced by Tigo, one of the largest telecom providers in Guatemala. It has more than 700,000 users and an agent network present in 94 percent of municipalities. Tigo Money users can access a range of financial and online services by connecting to about 30 entities and 12 remittance agencies that are linked to Tigo Money's digital platform.

As remittance flows from the United States to Guatemala account for more than 950,000 transactions monthly as of 2019, organizations have been exploring how mobile money apps like Tigo Money can be useful for increasing the financial inclusion and livelihoods of remittance recipients. Studies have found that individuals tend to use mobile money apps to store money and transact when they are informed of the improved financial management opportunities provided by the apps.[264]

An interviewee from Tigo Money pointed to the impact Tigo Mobile is having on increasing financial inclusion and reaching the unbanked population in Guatemala. About 40 to 45 percent of Tigo Money users are women between the ages of 22 and 40. Tigo Money is currently looking for ways to add app features that can enable it to reach illiterate users as well as features that help users create profiles based on their national identity cards.[265]

3.3 E-COMMERCE IS ON THE RISE DESPITE ONGOING CHALLENGES

The 2020 UNCTAD Business to Consumer (B2C) E-commerce Index, which measures a country's readiness to engage in e-commerce, ranks Guatemala 113th out of 152 countries and one of the lowest in the region (Table 3). While Guatemala performs in the bottom third, it has advanced by five positions since the 2019 index. Aside from its score on the Postal Reliability Index, Guatemala ranks in the middle relative to its neighbors across the other three indicators that comprise the index.[266,267] Despite Guatemala's lagging global ranking, its e-commerce sector has experienced rapid growth in the past few years with a couple of local and regional platforms rising to the top.

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262   "In Guatemala, Incumbents Tap FinTech Specialists to Ramp up Tech Capabilities," FinTech News America, December 2, 2021. https://FinTechnews.am/guatemala/46962/FinTech-in-guatemala/

263   Financial service provider, interview by DECA Team, December 2021, online.

264   Julia Bersch, Jean François Clevy, and Naseem Muhammad, "FinTech Potential for Remittance Transfers: A Central America Perspective," International Monetary Fund (IMF), IMF Working Paper WP/21/175, June 25, 2021. https://www.elibrary.imf.org/view/journals/001/2021/175/article-A001-en.xml

265   Financial service provider, interview by DECA Team, December 2021, online.

266   "The UNCTAD B2C E-Commerce Index 2020: Spotlight on Latin America and the Caribbean," United Nations Conference on Trade and Development (UNCTAD), UNCTAD Technical Notes on ICT for Development N° 17, 2020. https://unctad.org/system/files/official-document/tn_unctad_ict4d17_en.pdf

267   Guatemala does not have any historic data on postal reliability, the UNCTAD B2C E-commerce Index therefore gives Guatemala a score of zero by default, this brings down its ranking on the index.

TABLE 3. UNCTAD B2C E-commerce Index Indicators, 2020

	2020 RANK (OUT OF 152)	SHARE OF INDIVIDUALS **USING THE INTERNET** (2019 OR LATEST)	SHARE OF INDIVIDUALS **WITH A BANK ACCOUNT** (2017)	**SECURE INTERNET SERVERS** (NORMALIZED, 2019)	UNIVERSAL POSTAL UNION (UPU) **POSTAL RELIABILITY SCORE** (2019 OR LATEST)
LATIN AMERICA & THE CARIBBEAN	N/A	64	53	50	29
BELIZE	47	48	85	14	92
COSTA RICA	62	86	68	59	63
PANAMA	64	46	61	26	90
MEXICO	93	70	37	46	34
HONDURAS	96	39	45	38	54
EL SALVADOR	105	51	30	38	29
GUATEMALA	113	65	44	38	N/A
NICARAGUA	124	46	31	37	2

Source: 2020 UNCTAD B2C E-commerce Index

DOMESTIC AND INTERNATIONAL ONLINE SALES SHOW GREAT DYNAMISM

Over the past five years, e-commerce in Guatemala has grown steadily despite the challenges of low connectivity infrastructure and the high proportion of the population that is unbanked. Between 2017 and 2019 international sales and local sales grew by 24 and 34 percent, respectively. In 2019, 2,500 local e-commerce firms recorded USD $155 million in cross border transactions and USD $110 million in local transactions. In 2020, the Guatemalan Chamber of Commerce (CCG) forecasted that this vibrant domestic demand would continue. CCG estimated that local firms would grow by 152 percent and their local and international sales would rise by 118 and 61 percent, respectively. In addition, the number of Guatemalans using e-commerce was predicted to grow by 12 percent, reaching 12.2 million by 2024. The COVID-19 pandemic accelerated this growth. Many more Guatemalans embraced online shopping and electronic payments as a means to navigate government mandated home quarantines.[268,269] An interviewee from HugoApp, a startup originally from El Salvador but now successful across Central America that consolidates a range of services including food and cash delivery, and online marketplace for small businesses, noted that "the pandemic was a game changer, many users that were afraid to use technology were forced to because of lockdowns and this was helpful to support fast expansion."[270]

A diverse set of e-commerce players operate in Guatemala's growing market. International giants like Amazon, OLX, and eBay are commonly used in Guatemala, as well as large clothing stores and brands, such as Old Navy, JCPenney, Forever21, and Nike. Three delivery platforms, HugoApp, *PedidosYa*, and UberEats benefit from demand for at-home delivery services. Two local Guatemalan e-commerce platforms, *Pacifiko* and Kemik actively compete for market share.[271]

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268   "Guatemala – Country Commercial Guide," International Trade Administration, 2021, https://www.trade.gov/knowledge-product/guatemala-ecommerce

269   "2do Estudio Nacional de Comercio Electrónico: Guatemala 2019-2020 - Pre y durante COVID-19 (Resumen General)," Cámara de Comercio de Guatemala, 2020. https://issuu.com/vmendozam/docs/evaluando-el-comercio-online-en-guatemala-20200902

270   Tech startup, interview by DECA Team, January 2022.

271   Other popular e-commerce sites with presence in Guatemala can be found in the following sources: Tech Behemonths, BuiltWith and E-commerce Institute.

BOX 15: *Pacifiko* **and HugoApp, paving the way for more e-commerce in Guatemala**

Pacifiko and HugoApp are successful local and regional e-commerce businesses. *Pacifiko* is an e-commerce platform that a former Guatemalan employee at Amazon started with a small team of young collaborators enthusiastic to create an entrepreneurial legacy in Guatemala, Costa Rica, and other potential countries. The business initiated operations in 2019 and is among the top three e-commerce platforms in Guatemala. It has more than 100 employees with a catalog that offers some 20,000 products associated with more than 800 brands. It has the vision of enabling widespread access to products that meet various needs of people regardless of where they live and has been acknowledged by media outlets as the ideal online purchasing option in Guatemala.[272] Although *Pacifiko* faces challenges in finding qualified candidates, digitalizing catalogs, and gaining consumer confidence in using virtual marketplaces, Jorge Schippers, *Pacifiko's* founder, stressed the success found in the innovative drive of *Pacifiko* to do business in alternative ways to meet customer needs.[273]

HugoApp is a mobile application that enables users to buy products and services online such as food and beverages from restaurants and groceries and medical drugs from supermarkets. While headquartered in El Salvador, HugoApp is growing its presence in Guatemala. HugoApp has more than 30 employees in five cities in Guatemala. While HugoApp has encountered challenges in software costs and meeting hiring needs, an interviewee said the company's objectives is to expand operations in Guatemala by creating a presence in smaller cities and developing infrastructure points to connect more users and direct and freelance employees and collaborators.[274]

Despite the attractiveness and growth of e-commerce, many challenges remain ranging from consumer preference and trust to a constrained business enabling environment and burdensome cross-border transaction costs. Many Guatemalans remain skeptical of online transactions. Consumers and small businesses can be reluctant to purchase goods and services online due to lack of trust in the system.[275] According to an interviewee from Tigo Money, individuals and businesses prefer to receive cash payments.[276]

E-commerce businesses also face constraints around government required complex registration procedures. However, registration challenges have been recently addressed by the adoption of the "*Ley Antitrámites*", which aims to simplify business-related procedures.[277] Another challenge to unlocking the potential of e-commerce in Guatemala is that linking online transactions to traditional bank accounts is not easy. An interviewee from PayPal Guatemala noted that non-bank institutions such as PayPal face constraints in linking customers' bank accounts to PayPal digital finance accounts due to regulatory restrictions. Cross-border transaction costs also hinder e-commerce take-off. According to an interviewee from AGEXPORT, cross-border costs arise when local providers find bottlenecks in meeting taxation requirements and other market access regulations in foreign markets.[278]

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272   "*Pacifiko*, la opción ideal para compras en línea en Guatemala," Prensa Libre, March 28, 2022, https://www.prensalibre.com/c-studio/pacifiko-com-la-opcion-ideal-para-compras-en-linea-en-guatemala/

273   Tech startup, interview by DECA Team, December 2021.

274   Tech startup, interview by DECA Team, January 2022.

275   "Guatemala Country Commercial Guide: Guatemala - eCommerce," International Trade Administration, assessed October 10, 2021. https://www.privacyshield.gov/article?id=Guatemala-eCommerce

276   Financial service provider, interview by DECA Team, December 2021, online.

277   "*Ley de Simplificación de Trámites y su impacto en la competitividad nacional*," Programa Nacional de Competitividad de Guatemala, November 2021. https://www.pronacom.org/2021/11/01/simplificacion-de-tramites-guatemala-competitividad/

278   Business association, interview by DECA Team, January 2022, online.

3.4 DIGITAL TRADE SHOWS GROWTH POTENTIAL

Guatemala has experienced tremendous growth in cross-border trade of ICT goods over the last 20 years. Between 2000 and 2020, Guatemala's imports of ICT goods grew from USD $413 million to USD $1.3 billion. The country's exports in ICT goods, on the other hand, grew from USD $1 million in 2000 to USD $74 million 10 years later, but have been declining since. Such performance in ICT goods exports underscores structural challenges undermining the growth potential of Guatemala's overall exports and economy, such as lack of product sophistication and qualified labor force in ICT economic activities.[279] By 2020, exports in ICTs only amounted to USD $19 million.[280] Despite this growth, trade in ICT goods still represents less than 1 percent (.19 percent) of Guatemala's total trade. This is consistent with its neighbors, where the percentage is .24 percent in El Salvador, .14 percent in Honduras, and .81 in Costa Rica. As a comparison, in Mexico, ICT goods account for about 15 percent of total trade.[281] Guatemala's trade in ICT services has grown rapidly over the past two decades. Between 2005 and 2020, trade in ICT services tripled to USD $693.1 million by 2020. Today, ICT services account for 27 percent of the country's total services trade.[282]

DIGITAL TRADE FACILITATION: MOVING IN THE RIGHT DIRECTION

In recent years, Guatemala has made progress on facilitating paperless trade. In 2021, Guatemala scored 72.04 out of 100 points on the Trade Facilitation and Paperless Trade Index conducted by the UN Global Survey on Digital and Sustainable Trade Facilitation.[283] This score represented an increase of 22 percent from the 2019 score, slightly below the score of 72.15 points for the Latin America and the Caribbean region but above that of El Salvador, and can in most part be attributed to an increase in paperless trade and cross-border paperless trade (figure 15). While Guatemala's performance in trade facilitation areas such as transparency, formalities and institutional arrangement is almost similar to levels observed across Central America and Mexico, it lags behind in measures facilitating trade for micro-, small- and medium-sized enterprises (MSMEs) and women.[284]

To bridge gaps in digital trade facilitation, Guatemala's Association of Exporters (*AGEXPORT*) identified a number of interventions needed in taxation, customs, logistics, payment methods, consumer information protection, e-procurement and connectivity.[285] These interventions respond to needs identified by businesses trying to reach new markets through digital economy activities. An interviewee from *AGEXPORT* pointed out that challenges facing software businesses and other companies in ICT sectors range from financing and client outreach to office rental and market development gaps.[286]

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279   Susana M. Sanchez, Kinnon Scott and J. Humberto Lopez, "Guatemala: Closing Gaps to Generate More Inclusive Growth," World Bank, 2015. https://documents1.worldbank.org/curated/en/425151468327849352/pdf/106770-REVISED-PUBLIC-GTM-Report-English.pdf

280   "Bilateral trade flows by ICT goods categories, annual," United Nations Conference on Trade and Development, September 2021, https://unctadstat.unctad.org/wds/ReportFolders/reportFolders.aspx

281   "General Profile: Guatemala," United Nations Conference on Trade and Development, 2021, https://unctadstat.unctad.org/countryprofile/generalprofile/en-gb/320/index.html

282   "International trade in ICT services, value, shares and growth, annual," United Nations Conference on Trade and Development, September 2021, https://unctadstat.unctad.org/wds/ReportFolders/reportFolders.aspx

283   "UN Global Survey on Digital and Sustainable Trade Facilitation: Trade Facilitation and Paperless Trade in Guatemala," United Nations, 2021. https://www.untfsurvey.org/economy?id=GTM

284   Examples of trade facilitation measures for MSMEs are such that include MSMEs in authorized economic operator schemes, single windows, and national trade facilitation committees. Measures aiming to facilitate trade for women may be those pursuing objectives or strategies to increase women's participation in trade. For more information, please see: "Digital and sustainable trade facilitation in Latin America and the Caribbean: Regional Report 2021," United Nations, 2021. https://repositorio.cepal.org/bitstream/handle/11362/47370/S2100582_en.pdf?sequence=1&isAllowed=y

285   "El potencial del comercio digital en Guatemala," Data Export, March 1, 2021. https://revista.dataexport.com.gt/2021/03/el-potencial-del-comercio-digital-en-guatemala/

286   Devadit Barahona, AGEXPORT, interviewed by DECA Team, January 2022.

FIGURE 20. Cross-border paperless trade in Guatemala
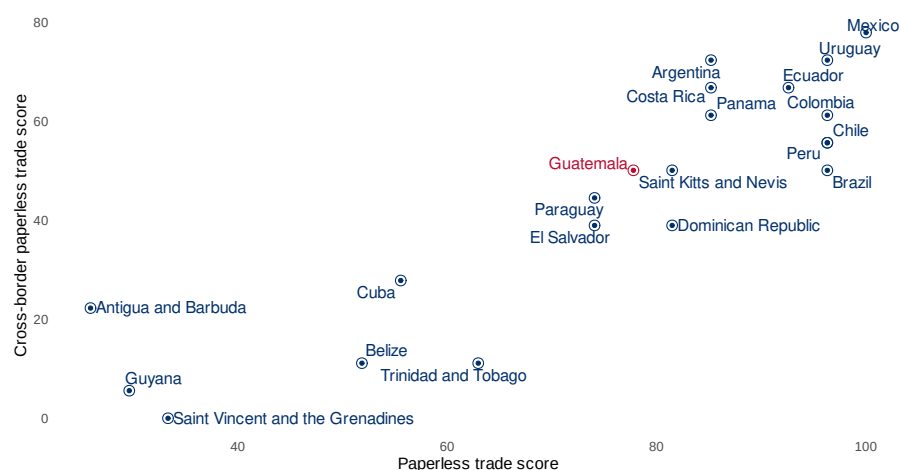
Source: *UN Global Survey on Digital and Sustainable Trade Facilitation (2021)*

3.5 TECH STARTUPS ARE GROWING BUT NEED SUPPORT, AS DOES THE WEAK DIGITAL TALENT POOL

ENTREPRENEURSHIP IS NOT NEW, BUT TECH STARTUPS REQUIRE SUPPORT

Entrepreneurship is not new to Guatemala. Nearly half of the country's GDP is generated through small and medium enterprises, mostly in the informal sector. One in four adults in the country generate income through a small business.[287] In a region with the highest concentration of early-stage entrepreneurial activity in the world, Guatemala is near the top, lagging behind only Argentina, Chile, Colombia, Ecuador, Peru, and Trinidad & Tobago. However, Guatemala's start-up ecosystem is still in the early stages of development. There are only two pre-accelerator programs in the country– Heuristika from the University Francisco Marroquin and Multiverse. Both leverage their corporate networks to connect entrepreneurs to services they require to grow. These include legal services to help startups register and navigate opaque registration processes to funding platforms that put founders in touch with early-stage seed capital. Guatemala's startup ecosystem also includes a few incubator hubs. One such hub, *Tec Guatemala*, headquartered in Guatemala City, aims to foster a culture of innovation akin to Silicon Valley. Founded in 2008, *Tec Guatemala* convenes more than 100 local technology companies, offering broadband internet, business firewall protection, and office space. Other entities that support entrepreneurship programs in Guatemala include Impact Hub in *Antigua Guatemala* and *Selina* in *Antigua Guatemala* and *Lake Atitlán*.[288]

The number of startups in Guatemala is small but growing. The Inter-American Development Bank (IDB) found that tech startups are leading the startup ecosystem in Central America, representing a market valued at more

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287   "*Informe de Situación y Evolución del Sector MIPYME de Guatemala 2015-2017,*" Ministerio de Economía, 2017. https://www.mineco.gob.gt/sites/default/files/MIPYMES/informedesituacion_y_evolu_delsector_mipymedeguatemala2015-2017.pdf

288   Juliana Butty, "Guatemala's Startup Eruption: Overview of a Nascent Ecosystem," Seedstars SA, January 3, 2019. https://www.seedstars.com/content-hub/insights/guatemalas-startup-eruption-overview-of-a-nascent-ecosystem/

than USD $100 million, which has generated more than 500 jobs.[289] Of the Guatemalan startups that have raised more than USD $1 million in capital to date, only three sectors are represented: energy (50 percent), mobility (25 percent) and healthcare/life sciences (25 percent).[290] Kingo Energy stands out as one of the most successful tech startups. Examples of startups in other economic sectors include: BlueKite, Duolingo, Doctor Online, School Buzz, 1bot, Gronn and Molvu.[291] .

Despite this growth, Guatemala's startup sector is not without its challenges. The country ranks 108 out of 137 countries on the Global Entrepreneurship Index (GEI), scoring only 18.5 points out of a possible 100.[292] It also ranks near the bottom of the World Intellectual Property Organization (WIPO)'s Global Innovation Index.[293] Both indices noted that while the country is welcoming to the entrepreneurial spirit and that Guatemalans have a high tendency to start businesses, local institutions and human capital constraints hold them back. Interviewees agreed with this assessment. Only 0.1 percent of the capital raised throughout the region has entered the country, presenting a significant impediment to Guatemala's strong startup sector. In addition, no company has reached a valuation above USD $1 billion.[294] One private sector interviewee cited the country's poor reputation, which holds back financing opportunities for entrepreneurs.[295] Like some of its neighbors, Guatemala continues to be known for its history of insecurity, which frightens risk averse investors.[296] Regional competitors with more enticing investment environments, such as Costa Rica, draw attention away from the country.[297]

Entrepreneurs in Guatemala also find it difficult to build a skilled workforce to fulfill their hiring needs. Interviewees from the private sector cited the need to improve the quality of Guatemala's digital talent pool if they are to unlock the potential of the country.[298] Better training and more accessible accelerator and networking centers to complement those that already exist are needed to achieve this.

BOX 16: Aly-ai showcases the potential of digital start-ups in Guatemala

Aly-ai is an innovative start-up developed by Guatemalan entrepreneurs eager to seize business opportunities in the digital economy. Nery Guzman and Marianne Springmühl are the cofounders of this enterprise that is unleashing artificial intelligence algorithms to boost small business sales and offer software and information services to businesses domestically and overseas. Aly-ai is the first company that received seed capital from local Guatemalan investors, with their first capital injection valued at USD $500,000.

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289 IDB uses the term "Technolatinas" in the report to refer to technology-based private companies born in Latin America and the Caribbean (LAC) and owned by founders from the region. The definition includes the wide range between early-stage startups and well-established companies worth tens of billions of dollars and with thousands of employees. Most of them are entre- preneur-driven digital ventures. For more information, please see: "Technolatinas: The LAC start-up ecosystem comes of age," Inter-American Development Bank, 2021, https://publications.iadb.org/publications/english/document/Tecnolatinas-2021-The-LAC-Startup-Ecosystem-Comes-of-Age.pdf

290 "Technolatinas: The LAC start-up ecosystem comes of age," Inter-American Development Bank, 2021, https://publications.iadb.org/publications/english/document/Tecnolatinas-2021-The-LAC-Startup-Ecosystem-Comes-of-Age.pdf

291 Juliana Butty, "Guatemala's Startup Eruption: Overview of a Nascent Ecosystem," Seedstars SA, January 3, 2019. https://www.seedstars.com/content-hub/insights/guatemalas-startup-eruption-overview-of-a-nascent-ecosystem/; "3 Guatemala Tech Companies to Watch in 2021," Biz Latin Hub, June 6, 2022. https://www.bizlatinhub.com/guatemala-tech-companies/

292 "Global Entrepreneurship Index 2019," Global Entrepreneurship and Development Institute, 2019. https://thegedi.org/global-entrepreneurship-and-development-index/

293 "Global Innovation Index 2021: Tracking Innovation through the COVID-19 Crisis," World Intellectual Property Organization, 2021. https://www.wipo.int/edocs/pubdocs/en/wipo_pub_gii_2021.pdf#page=28

294 "Global Innovation Index 2021: Tracking Innovation through the COVID-19 Crisis," World Intellectual Property Organization, 2021. https://www.wipo.int/edocs/pubdocs/en/wipo_pub_gii_2021.pdf#page=28

295 Tech startup, interview by DECA Team, December 2021.

296 Tech startup, interview by DECA Team, December 2021.

297 Tech startup, interview by DECA Team, December 2021.

298 Tech startup, interview by DECA Team, December 2021; Tech startup, interview by DECA Team, January 2021; Tech startup, interview by DECA Team, January 2022, online.

BOX 16: Aly-ai showcases the potential of digital start-ups in Guatemala (continued)

Aly-ai offers a range of innovative digital features that enable businesses to raise sales and gain market share. It automates marketing campaigns and segments target audiences in less than five minutes by optimizing resources invested using AI testing and identifying the most effective combination of advertisements. Other Aly-ai features generate real-time marketing insights and data-driven reports aimed at facilitating decision-making processes in businesses.[299]

Nery Guzman, Aly-ai's Chief Technology Officer, shared the promising opportunities for Aly-ai in the years to come. From an increased market presence in Latin America to leveraging a reduction in digital logistics costs to hiring enthusiastic professionals in the digital economy, Aly-ai aims to go after the potential benefits an increasingly enabling business environment for Guatemala is creating. However, they are not immune to the challenges present in Guatemala's tech startup ecosystem. Some of these include a mismatch between the skills available in the market and those sought by employers, lack of financing opportunities, absence of standardization processes for optimizing sales, and operational bottlenecks hampering business scale up activities. National vocational training institutions, such as the National Institute for Technical Training (INTECAP), can play an important role in cooperating with educational institutions and business support organizations to strengthen the Guatemalan workforce's skills to thrive in the emerging national digital economy.[300]

TABLE 4. Differences between startups and micro, small, and medium enterprises (MSMEs)

	STARTUP	MSME
RATE OF GROWTH	Scales quickly; often loses money before reaching a profitable scale	Growth is not always the goal; provides stable employment for proprietors
SIZE	Grows aggressively to be able to compete globally	Any size that is sustainable
FUNDING	Venture capital or Angel investors—ideally, investors that can take risks and absorb losses	Usually banks, personal finance, or other forms of funding

GUATEMALA'S DIGITAL TALENT POOL IS UNTAPPED AND NOT INCLUSIVE

With the largest youth population in Latin America and among countries with the most early-stage entrepreneurial activity in the world, Guatemala has the formula for a strong digital talent pool. Many local universities offer ICT curricula and some have embraced the massive open online course (MOOC) model to tap into this resource. In 2015, *Universidad Galileo* became the first university from Guatemala to join edX. However, access inequalities persist. In 2019, nearly 30 percent of Guatemalans between 15 and 24 years of age were neither in school, employed, nor in training.[301] Access to education and employment opportunities is uneven among young men and women. While only 10 percent of young men are not in school, employed, nor in training,[302] about a half of young women are not engaged in such activities.[303] This means that while some students are gaining access to new, advanced ICT curricula, others are falling further behind in gaining marketable skills.

299   *"Cómo es usar Aly?,"* Aly, March 24, 2022. https://www.aly-ai.com/#como-funciona

300   Tech startup, interview by DECA Team, February 2022, online.

301   "Share of youth not in education, employment or training, total (% of youth population) - Guatemala," World Bank Group, June 2022. https://data.worldbank.org/indicator/SL.UEM.NEET.ZS?locations=GT

302   "Share of youth not in education, employment or training, male (% of male youth population) - Guatemala," World Bank Group, June 2022. https://data.worldbank.org/indicator/SL.UEM.NEET.MA.ZS?locations=GT

303   "Share of youth not in education, employment or training, female (% of female youth population) - Guatemala," World Bank Group, June 2022. https://data.worldbank.org/indicator/SL.UEM.NEET.FE.ZS?locations=GT

DIGITAL BUSINESSES STRUGGLE TO MEET THEIR HIRING NEEDS

In 2019, 43 percent of employers in Guatemala reported that they found it difficult to find the right candidates to meet their hiring needs. They found it most difficult to find employees skilled in manufacturing, engineering, and sales and marketing. While employers of all sizes face this challenge, medium firms between 50 and 250 employees and large firms of more than 250 employees reported this challenge most.[304] According to several interviewees, the quality of education and training in Guatemala is a key roadblock. An interviewee from Aly-ai stated that their candidates often lacked foundational logic and reasoning skills. Both Aly-ai and interviewees from the Universidad del Valle de Guatemala emphasized that these skills could be taught more effectively by integrating them in curricula at the primary, secondary, and tertiary education levels.[305] They noted that the national education curriculum lacks solid coursework on computational thinking, which affects student performance in math and other quantitative subjects.[306] Interviewees emphasized that mainstreaming computational training across all educational levels could help ameliorate this concern and support students in pursuing careers in STEM.[307]

GUATEMALA'S DIGITAL TALENT POOL HAS INCLUSION GAPS IN EDUCATION AND EMPLOYMENT

Guatemala struggles to close its gender gaps. In 2021, the World Economic Forum Global Gender Gap Report ranked Guatemala as the poorest performer in Latin America. Between 2006 and 2021, while 15 countries in the region improved their ranking, several did not, including Guatemala, which fell from 96 to 122.[308] This is apparent in educational attainment and in ICT. While Latin America marches towards gender parity, Guatemala's score of 96.9 reveals large gaps that must be bridged. Only 5.43 percent of women attained degrees in STEM, compared to 16.95 percent of men, although the share of women working in research and development fields has been increasing over time. According to the United Nations Educational, Scientific and Cultural Organization (UNESCO), the share of women researchers in full-time equivalents increased from 40 percent in 2010 to 55 percent in 2018, and its share of women researchers in headcounts rose from 44 percent to 47 percent over the same period.[309]

Indigenous women face greater challenges in obtaining access to employment and education opportunities in Guatemala.[310] An interviewee from UN Women pointed out that Indigenous women face higher poverty conditions which make basic food, education, and health expenses let alone internet and digital devices.[311] They live in regions that are remote from markets and places of major economic activity. An interviewee from Wonder Woman Guatemala said that women face obstacles in pursuing careers in ICT/STEM sectors these sectors often have business models that do not enable women to have a career start or mobility.[312] Women tend to work in informal activities or start businesses out of necessity, which overshadows choices for pursuing a career in ICT/STEM.

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304   "ManpowerGroup 2020: Infografía de Escasez de Talento en Guatemala," ManpowerGroup, 2020. https://www.manpowergroup.com.mx/wps/wcm/connect/manpowergroup/9c9d63f5-5b95-4e25-91c1-67daa2ee989d/2019_Infografla_escasez_talento_GT.pdf?MOD=AJPERES&CONVERT_TO=url&CACHEID=ROOTWORKSPACE.Z18_2802IK01OORA70QUFIPQ192H31-9c9d63f5-5b95-4e25-91c1-67daa2ee989d-m.PG2bt.

305   Tech startup, interview by DECA Team, February 2022, online.

306   Anonymous interviewee, interview by DECA Team, December 2021, online.

307   Anonymous interviewee, interview by DECA Team, December 2021, online.

308   "Global Gender Gap Report 2021: Insight Report," World Economic Forum, March 2021. https://www3.weforum.org/docs/WEF_GGGR_2021.pdf.

309   "Science, Technology and Innovation: Guatemala," UNESCO Institute of Statistics, October 17, 2022. http://uis.unesco.org/en/country/gt?theme=science-technology-and-innovation.

310   "Mujeres de Guatemala. Un análisis de sus condiciones económicas y sociales," Instituto Centroamericano de Estudios Fiscales, 2021. https://mail.icefi.org/comunicados/guatemala-icefi-presenta-estudios-base-para-proponer-politicas-publicas-de.

311   International organization, interview by DECA Team, January 2022, online.

312   Civil society organization, interview by DECA Team, December 2021, online.

Recommendations

This section includes recommendations for what the international development community can do to harness opportunities and mitigate risks in Guatemala's digital ecosystem. It also includes a version of those recommendations that are slightly condensed and reframed to be directed at what the Government of Guatemala can do.

RECOMMENDATIONS FOR THE INTERNATIONAL DEVELOPMENT COMMUNITY

International development actors can support and strengthen Guatemala's digital ecosystem in many ways. This section outlines recommendations for specific actions and partnerships as well as general guidance for digitally enabled programming. The list is organized by DECA pillar and cross-cutting themes.

Table 5 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 approach actors in the international development community can use to implement the recommendation
- **SDG and Principles for Digital Development Connections:** Aligns each recommendation with the Principle for Digital Development and the SDGs.

The **detailed recommendations section that follows** provides further explanation of how international development actors can implement each recommendation, including:

- Relevant context, recommended partners, and ways to build on existing programming
- Examples and lessons learned from donor-funded programs
- Available resources and implementation and funding mechanisms
- Important considerations, including unknowns and potential challenges
- Key opportunities to draw upon and align with the Principles for Digital Development and the SDGs

TABLE 5. Summary of DECA recommendations for the international development community

	WHAT?	WHY?	HOW?	SDG & PRINCIPLES FOR DIGITAL DEVELOPMENT CONNECTIONS
PILLAR 1: DIGITAL INFRASTRUCTURE AND ADOPTION				
1	Support expansion of last-mile connectivity by coordinating digital connectivity pilots	Reduced digital divides and increased connectivity for all.	Create an evidence base to support greater awareness of the feasibility and benefits of alternative connectivity solutions. Work together to surface new and scale existing context-driven approaches to improving last-mile connectivity. Increase the affordability of device ownership through piloting refurbished device activities.	**Digital Principles**: • Understand the existing ecosystem, • Build for sustainability • Reuse and improve, • Design with the user **SDGs:** 9, 10, 12, 16
2	Convene multi-stakeholder discussions to help refine and implement telecom policy and regulation	Strengthened telecom market regulation, increased internet affordability, and reduced digital divides.	Convene stakeholders from the public and private sectors to promote open discussion on the importance of regulatory changes in the telecom market. Promote commitment from political stakeholders to withstand election cycles. Coordinate across donors using a triangular south-to-south cooperation model.	**Digital Principles**: • Understand the existing ecosystem • Build for sustainability, • Be collaborative **SDGs:** 16, 17
PILLAR 2: DIGITAL SOCIETY, RIGHTS, AND GOVERNANCE				
3	Build on current efforts that leverage digital technologies to improve public service delivery	Improved public service delivery and transparency for all.	Improve public service delivery through the use of digital technologies. Support local governments in adoption of an inclusive approach to the digitalization of public services through technical capacity-building. Support a culture of data-driven decision-making for government entities and CSOs.	**Digital Principles**: • Reuse and improve, • Be collaborative, • Build for sustainability, • Be data driven **SDGs:** 16, 10
4	Promote the resilience of civil society and media through advocacy for policy change and capacity-building that counters disinformation	Increased safety and security for civil society and media, increased citizen engagement online, and greater accountability and transparency.	Convene a multi-stakeholder group to support digital rights policymaking. Counter disinformation through strategic partnerships and capacity building efforts with key civil society and media organizations. Support independent online media to ensure growth and sustainability.	**Digital Principles**: • Understand the existing ecosystem • Be collaborative **SDGs:** 16, 17
PILLAR 3: DIGITAL ECONOMY				
5	Enable last-mile digital financial inclusion through public and private sector partnerships including using remittances as an entry point	Increased digital financial inclusion for marginalized and vulnerable populations.	Support the implementation of national financial inclusion strategies and partner with Guatemala's FinTech Association, Chamber of Financial Entities, and microfinance cooperatives to foster digital financial inclusion for all. Explore piloting remittance cooperatives that use digital financial services. Engage the private sector to enable last-mile financial inclusion.	**Digital Principles**: • Understand the existing ecosystem • Build for sustainability • Be collaborative **SDGs:** 8, 10

	WHAT?	WHY?	HOW?	SDG & PRINCIPLES FOR DIGITAL DEVELOPMENT CONNECTIONS
6	Support the growth of the tech startup ecosystem through the creation of innovation hubs	Increased capacity to leverage innovation to solve development challenges.	Partner with university and government stakeholders to replicate Guatemala City's *Campus Tec* in other economic hubs.	**Digital Principles**: • Understand the existing ecosystem • Design for scale • Build for sustainability **SDGs:** 8, 9
7	Support financial regulatory efforts for sustained enforcement of *Ley Antitrámites*	Improved public sector transparency and accountability.	Support key government agencies including MINECO and PRONACOM to streamline the digitalization of procedures and forms.	**Digital Principles**: • Understand the existing ecosystem • Build for sustainability • Be collaborative **SDGs:** 16, 17
			CROSS-CUTTING	
8	Promote the mainstreaming of ICT skills and digital literacy at all educational levels with an inclusive, market-driven approach	Decreased digital divides and increased economic opportunities for all.	Support the Ministry of Education in updating the national curricula to include ICT skills development at all education levels. Partner with local organizations to identify youth to be community digital champions. Engage the private sector to invest in apprenticeship and internship programs. Build digital literacy targeted to gain economic activity generating skills.	**Digital Principles**: • Understand the existing ecosystem • Build for sustainability • Reuse and improve **SDGs:** 4, 8, 10
9	Build more robust cybersecurity policy, capacity, and awareness	Safer and more resilient digital systems, networks, and citizens that ensure security, privacy, and long-term sustainability.	Support cybersecurity policy implementation through the creation of technical working groups. Provide cybersecurity training tailored to a range of stakeholders. Design and deliver online awareness-raising campaigns, particularly targeted to vulnerable groups. Conduct additional cybersecurity research to build capacity and safeguard from cyber threats.	**Digital Principles**: • Address privacy and security, • Be collaborative **SDGs:** 12, 16, 17

DETAILED RECOMMENDATIONS

1. SUPPORT THE EXPANSION OF LAST-MILE CONNECTIVITY BY COORDINATING DIGITAL CONNECTIVITY PILOTS

Problem Statement (opportunity/risk): A critical challenge to achieving inclusive development in Guatemala is the lack of connectivity in rural areas. The telecommunications market in Guatemala has high barriers to entry for new operators and the portions of spectrum that are more efficient for 4G connectivity are not available. Despite the existence of initiatives working on alternative connectivity and innovations in electricity supply they are executed as pilots for small groups of the Guatemalan population and rely on the support of more short-term projects.

Development Hypothesis: If the international development community supports digital connectivity pilot projects complemented by digital literacy activities, then the evidence base and potential for scale of alternative connectivity solutions and business models could grow and more Guatemalans in target geographies could access and use the internet. This will lead to new lines of public and private investments in connectivity that will increase economic opportunities and citizen access to information and services, all contributing to a decreased incentive for irregular migration in previously unconnected rural areas.

What can the international development community do: In Guatemala and in the region more broadly, various actors and technologies are available to deploy rural network coverage including through alternative connectivity solutions. However, the business case and models for deployments is challenging, due to high barriers to entry and challenges raising capital. Interventions are required to identify and develop business models, deploy the right technology, ensure widespread adoption through integrating digital literacy and safety considerations, and build a plan for sustainability. A pilot can explore solutions with satellites, free spectrum and community networks and should consider four areas of innovation as suggested by GSMA: base stations, backhaul, energy, and business models.[313] Activities can include mapping and evaluating the feasibility of existing alternative connectivity solutions and business models. International development actors can also bring together key players such as private sector technology companies, MNOs, ISPs, and key government stakeholders to co-create and surface new context-driven approaches to improving last-mile ideas. Initiatives that increase device affordability should be prioritized, options may include supporting the supply of low-cost refurbished devices. As international development actors explore methods for expanding the country's digital connectivity, it is critical that complementary digital literacy (including cyber hygiene) programming is planned to ensure inclusive, safe adoption.

RELEVANT ACTORS:

- Private Sector: Microsoft, Claro, Tigo
- Government: SIT, Vice Ministry of Telecommunications, SEPREM
- Internet Society
- UN Women
- Independent ISPs

KEY RESOURCES:

- Barriers to Investing in Last-Mile Connectivity (USAID, 2020)
- Infrastructure and Community Development (Internet Society, 2022)
- Investing to Connect (USAID, 2019)
- Closing the Coverage Gap: How innovation can drive rural connectivity (GSMA, 2019)
- Starlink in Guatemala (Starlink, 2020)
- Connectivity Strengthens Livelihoods, preserves peace in Colombia (Lavazza, 2018)

> *This recommendation embodies Principles for Digital Development, Design With the User and Build for Sustainability. This recommendation is most aligned with SDGs 4 (quality education), 9 (resilient infrastructure, Target 9.c significantly increase access to ICT and strive to provide universal and affordable access to the internet in LDCs by 2020), 10 (reduced inequalities) and 11 (sustainable cities and communities).*

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313   Handforth, Calum. 2019. "Closing the Coverage Gap: How Innovation can Drive Rural Connectivity." GSMA. https://www.gsma.com/mobilefordevelopment/wp-content/uploads/2019/07/GSMA-Closing-The-Coverage-Gap-How-Innovation-Can-Drive-Rural-Connectivity-Report-2019.pdf.

2. CONVENE MULTI-STAKEHOLDER DISCUSSIONS TO HELP REFINE AND IMPLEMENT TELECOM POLICY AND REGULATION

Problem Statement (opportunity/risk): The expansion of affordable, inclusive, and competitive connectivity infrastructure in Guatemala is held back by inconsistent policy prioritization and implementation. If the GoG is not supported to increase transparency and independence of the telecommunications regulator (SIT), modernize its regulatory framework in support of competition, and follow through on policy implementation, Guatemala risks being left behind, deepening regional and in-country digital divides.

Development Hypothesis: If the GoG's commitment to improved telecom sector regulation is supported through multi-stakeholder efforts, then more Guatemalans can access and use the internet at an affordable rate, which will lead to increased economic opportunities and decreased incentive for irregular migration.

What can the international development community do: International development actors can convene a multi-stakeholder working group focused on renewing the work with Alliance for Affordable Internet (A4AI)[314] and on creating a National Broadband Plan. The 2021 A4AI Affordability Report[315] provides a guide on how to support governments to promote competitive and diverse telecom markets, the key being to engage with the government on challenges around spectrum policy, licensing rules and procedures, and import duties and taxation. Suggested activities include promoting open discussion on the importance of legal, institutional, and regulatory changes in the telecommunications sector by issuing an open letter signed by key organizations such as Internet Society, UNESCO, universities, IXP Guatemala, and DW Akademie, among others (see examples from the Open Data Institute[316] and by AI and Robotics researchers).[317] Actors in the international development community can also promote commitment from the current government and candidates for the next period of government by inviting them to sign a deal on digital development (see an example from Colombia).[318] It is key that international development actors coordinate amongst themselves to use a South-South cooperation model.[319] It is a model for collaboration in which traditional donor countries and multilateral organizations facilitate South-South initiatives through the provision of funding, training, management, and technological systems.

RELEVANT ACTORS:

- International Organizations: UNESCO, GIZ, UN Women
- Mobile Network Operators: Claro, Tigo
- Independent ISPs
- Government: SIT, SEPREM, MINECO, MINFIN, MINGOB, Municipal Government Leaders
- Others: Internet Society, Carnegie Mellon University, USTTI, IXP Guatemala, local government coordinating organizations, Microsoft, local universities (e.g., *Universidad del Valle de Guatemala, Universidad Galileo*)

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314 "Coalición Guatemalteca para una Internet Asequible (A4AI-Guatemala)." n.d. Alliance for Affordable Internet. December 12, 2022. https://a4ai.org/where-we-work/guatemala/.

315 "2021 Affordability Report." 2021. Alliance for Affordable Internet. https://a4ai.org/report/2021-affordability-report/.

316 "Open letter to parties: publish candidate data and be open about use of personal data." 2017. Open Data Institute. https://theodi.org/article/open-letter-to-parties-publish-candidate-data-and-be-open-about-use-of-personal-data/.

317 "Autonomous Weapons Open Letter: AI & Robotics Researchers." 2016. Future of Life Institute. https://futureoflife.org/open-letter/open-letter-autonomous-weapons-ai-robotics/.

318 "Candidatos colombianos firman pacto social por derechos humanos." 2018. DW. https://www.dw.com/es/candidatos-colombianos-firman-pacto-social-por-derechos-humanos/a-43920520.

319 "La cooperación Sur-Sur y la cooperación triangular en acción." 2018. UNESCO Digital Library. https://unesdoc.unesco.org/ark:/48223/pf0000264426_spa.

KEY RESOURCES:

- A4AI Policy and Regulatory Good Practices (A4AI, 2022)
- Iniciativa de Ley 5452, conocida como Ley de Desarrollo Económico de las Mujeres (Ley DEM)
- Rural Connectivity in Latin America and the Caribbean report (IICA, 2020)

> *This recommendation was designed in the spirit of the Principles for Digital Development: Understand the Existing Ecosystem, Be Collaborative, and Build for Sustainability. The relevant SDGs are 9 (resilient infrastructure, Target 9.c significantly increase access to ICT and strive to provide universal and affordable access to internet in LDCs by 2020), 16 (peace, justice, and strong institutions) and 17 (partnerships for the goals).*

3. BUILD ON CURRENT EFFORTS THAT LEVERAGE DIGITAL TECHNOLOGIES TO IMPROVE PUBLIC SERVICE DELIVERY

Problem Statement (opportunity/risk): Through a digital government strategy, Guatemala has a significant opportunity to develop citizen-oriented services, strengthen business opportunities, and make its processes transparent and accountable. However, current public service delivery is unequally available across sectors, deficient in quality, and involves complex procedures.

Development Hypothesis: If the GoG is supported to expand affordable and inclusive use of the internet in tandem with creating a digital government strategic plan that promotes the application of digital technologies for transparent, effective, citizen-centered, quality public service delivery, then more Guatemalans will have access to public services and quality social services, which can help to disincentivize irregular migration.

What can the international development community do: The international development community can support the creation of digital government strategic plans and the implementation of the May 2021 *Ley Antitrámites* (Decree 5-2021 Law for the Simplification of Requirements and Administrative Procedures)[320] focusing on improving public service delivery for vulnerable groups in Guatemala. The digitalization of citizen- and organization-facing government processes, services, and procedures facilitates access for citizens in different parts of the country. Support from the international development community should emphasize the promotion of transparent data and systems. Digital government systems and services should be interoperable across government agencies and across government levels (central to local). Support to local governments to ensure inclusion-centric approaches are taken including helping to ensure information and services on digital government platforms are made available in Indigenous languages, account for users with lower literacy and digital literacy levels, are designed to include populations with disabilities, and function on lower internet speeds and less advanced devices. To do this, training can be provided to local and central government decision makers and technical capacity building efforts can be delivered for IT staff that are responsible for developing digital government platforms. Efforts to digitalize public service delivery can be paired with capacity building on data-driven decision making.

RELEVANT ACTORS:

- Government: GAE, MINEDUC, MINECO, PRONACOM, MSPAS
- Civil Society Organizations: *Asociación Sotz'il, 48 Cantones, Unidad de Protección a Defensoras y Defensores de Derechos Humanos (UDEFEGUA)*
- Academia: *Universidad del Valle de Guatemala (UVG), Universidad Galileo*
- Development Organizations: PNUD, World Bank, IBD

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320   Curruchich, Selvyn, Virginia Contreras, Norvin Mendoza, VIRGINIA CONTRERAS, Danilo Ramírez, and DANILO RAMÍREZ. 2021. "Entra en vigencia la Ley Antitrámites – Noticias Última Hora de Guatemala." Diario de Centro América. https://dca.gob.gt/noticias-guatemala-diario-centro-america/entra-en-vigencia-la-ley-antitramites/.

KEY RESOURCES:

- Digital Government Model (USAID, 2022)
- Just Add Water (USAID/Guatemala, Nexos Locales, 2022)
- UN E-Government Knowledgebase

> *This recommendation is built on the Principles for Digital Development: Reuse and Improve, Be Collaborative, Build for Sustainability, and Be Data Driven. The relevant SDGs are 10 (reduced inequalities) and 16 (peace, justice, and strong institutions).*

4. PROMOTE THE RESILIENCE OF CIVIL SOCIETY AND MEDIA THROUGH ADVOCACY FOR POLICY CHANGE AND CAPACITY BUILDING THAT COUNTERS DISINFORMATION

Problem Statement (opportunity/risk): Civil society organizations and the media in Guatemala actively engage in action to monitor, audit, and ensure transparency from the government. Digital transformation in Guatemala, and globally, is having increasingly more serious implications for fundamental human rights including freedom of expression, access to information, the rights to privacy, and the protection of youth. Not only is Guatemala's policy and regulatory framework struggling to keep pace, but so too are civil society and media in their capacity to understand, address, and safeguard against violations of these human rights online. The spread of misinformation, disinformation, online censorship, and the rise of net centers threaten information integrity.[321]

Development Hypothesis: If the enabling environment for internet freedom is supported through policy change advocacy, the capacity of civil society and independent media to detect and combat digital rights violations will increase and more citizens can participate actively in the digital ecosystem, which will lead to increased accountability and transparency of the government and potentially reduced incentive for irregular migration (due to a seemingly more trustworthy government).

What can the international development community do: Multi-stakeholder groups comprised of civil society, academia, and human rights and digital rights experts can support civil society organizations to advocate for digital rights policy change by organizing workshops for civil society organizations that (1) focus on bringing together civil society organizations, (2) provide capacity building on advocacy and community organizing best practices such as how to prepare short and effective messaging, (3) raise awareness of the gaps in Guatemala's policy and legal framework for protecting digital rights, and (4) unite civil society organizations under a common agenda for digital rights policy change. The international development community can also focus on building the capacity of civil society organizations to counter the spread of disinformation by boosting their fact checking capabilities. Lastly, civil society as well as media organizations require support to ensure their sustainability. Such support could include more robust capacity around general operations such as human resources, finance, and legal issues so they can work more efficiently when carrying out important reporting and advocacy work.

RELEVANT ACTORS:

- Independent media: *Plaza Pública, Agencia Ocote, Confirmado, No-Ficcion, Ojo Con Mi Pisto*
- Youth organizations: UNICEF, Save the children
- Government: PDH, SEPREM, Codisra, and others

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321 "Report: "Bots, netcenters and the fight against impunity." 2019. CICIG. https://www.cicig.org/statement-2019/bots-netcenters-and-the-fight-against-impunity/?lang=en.

KEY RESOURCES:

- USAID Disinformation Primer (USAID, 2021)
- Confirmado Campus
- Bots, Net Centers, and the Fight Against Impunity (CICIG, 2019)
- Guatemalan Troll Factories (Luis Assardo, 2018)

> *This recommendation is built on the Principles for Digital Development: "Understand the Existing Ecosystem" and "Be Collaborative"; The relevant SDGs are 16 (peace, justice, and strong institutions) and 17 (partnerships for the goals).*

5. ENABLE LAST-MILE DIGITAL FINANCIAL INCLUSION THROUGH PUBLIC AND PRIVATE SECTOR PARTNERSHIPS INCLUDING USING REMITTANCES AS AN ENTRY POINT

Problem Statement (opportunity/risk): Guatemala has experienced rapid growth of financial providers offering digital financial services (DFS) to a range of population segments including remittance recipients, small businesses, individual customers, and large enterprises. However, fewer than a half of Guatemalans have a bank account and more than two thirds of the population do not use DFS. While Guatemala's *Superintendencia de Bancos (SIB)* reports on financial inclusion indicators, they are not regularly updated and are not disaggregated by gender, Indigenous status, or geography and therefore do not fully capture the socioeconomic and demographic characteristics of underserved population segments. As a result, there is a mismatch between how policymakers and financial service providers perceive the financial needs and preferences of different customer segments and their actual needs and preferences. However, with the growing number of DFS offerings in Guatemala, there is unrealized potential for DFS to help families living in poverty mitigate economic shocks and build stronger pathways out of poverty.

Development Hypothesis: If the GoG is supported in the development and implementation of a new national financial inclusion strategy, initiates strategic partnerships in the digital economy including with the private sector, and leverages the potential of digital remittances, more Guatemalans will have access to economic opportunities, which will help improve resilience to shocks for poor and vulnerable populations which may help to reduce irregular migration.

What can the international development community do: International development actors can promote financial inclusion with an emphasis on digital financial inclusion where relevant at the policy and programmatic levels. This can be done through the support of the ongoing implementation of the 2019 - 2023 National Financial Inclusion Strategy (ENIF) coordinated by the SIB, Ministry of Economy (MINECO), and Guatemala's Central Bank (BANGUAT). Support can also be provided to systematically identify and address implementation gaps and to kickstart a new financial inclusion strategy. Activities to increase digital financial inclusion could involve digital financial literacy campaigns and the formation of digital financial inclusion alliances with key stakeholders such as *Asociación FinTech Guatemala*, Chamber of Financial Entities, and *Micoope*.

In Guatemala, remittances account for over 18 percent of the country's GDP,[322] making it the second largest remittance corridor (behind Mexico) to the U.S. in Latin America.[323] Despite this large financial in-flow, financial

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322   "Remittances Data: Remittance inflows," Global Knowledge Partnership on Migration and Development (KNOMAD), July 3, 2022. https://www.knomad.org/data/remittances

323   Babii, Aleksandra, Alina Carare, and Dmitry Vasilyev. 2022. "Evolution of Remittances to CAPDR Countries and Mexico During the COVID-19 Pandemic, WP/22/92, May 2022." International Monetary Fund. https://www.imf.org/-/media/Files/Publications/WP/2022/English/wpiea2022092-print-pdf.ashx.

inclusion remains low in remittance recipient communities. There is potential to support these communities through the creation of remittance cooperatives.[324] In the same way that microfinance cooperatives build responsible financial habits through group accountability and trust, remittance cooperatives do the same but based on the inflow of remittances. The cooperatives can offer loans to members who have less cash on hand and share knowledge about starting and building businesses. There is an opportunity to set up such cooperatives using digital financial services. However, while there are benefits to digital financial services including financial growth and security, digital facilities may not always be the best-fit solution. The following should be considered before designing a remittance cooperative pilot that relies on digital financial services: internet coverage, internet affordability, device ownership, penetration of mobile money agent networks. The private sector can also be engaged to support last-mile financial inclusion. International development actors can work with the private sector to fill knowledge gaps about key market segments, foster enabling policies, and build awareness and understanding of formal financial services among consumers and MSMEs.

RELEVANT ACTORS:

- Business support organizations: *Asociación FinTech Guatemala, Cámara de Finanzas de Guatemala*
- Government: SIB, MINFIN, MINECO, PRONACOM, MINECO, BANGUAT, SAT
- Other: Partnerships for Central America; MasterCard Mobile Money Partnership Program

KEY RESOURCES:

- Strengthening Mobile Money Agent Networks: replication guide (USAID, 2022)
- Family Remittances in 2021: Is double-digit growth the new normal? (The Dialogue, 2022)
- Remittances in Latin America and the Caribbean and the effects of the COVID-19 pandemic: 2021-2021 (CEMLA, 2022)
- How Regulators use Sex-Disaggregated Data and RegTech to Enhance Financial Inclusion (USAID, 2021)
- Digital Payments Toolkit (USAID, 2020)
- The Promise of FinTech in a Post Covid World (IMF, 2020)
- FinTech Partnerships Playbook (USAID, 2019)
- 2019 - 2023 National Financial Inclusion Strategy (SIB, 2019)
- A Guide for Digital Finance to Reach Rural Customers (CGAP, 2019)
- The use of remittances and financial inclusion (IFAD, 2015)

> *This recommendation was designed with the following Principles for Digital Development and SDGs in mind: Principles for Digital Development, Understand the Existing Ecosystem, Build for Sustainability, and Be Collaborative; SDGs 8 (decent work and economic growth) and 10 (reduced inequalities).*

6. SUPPORT THE GROWTH OF THE TECH STARTUP ECOSYSTEM THROUGH THE CREATION OF INNOVATION HUBS

Problem Statement (opportunity/risk): Guatemalan tech startups are on the rise and have potential for reaping nationwide inclusive socioeconomic development gains. Before COVID-19, entrepreneurial activity led by Guatemalan e-commerce companies was already showcasing increasing sales and market expansion prospects. With e-commerce users expecting to rise to 12.2 million in Guatemala by 2024, there is great growth potential to be found for entrepreneurs and traditional sales and retail companies through digitalization generally and the adoption of e-commerce specifically. While Guatemalan tech startups are growing in quantity, they only account for a small fraction of startups in the country and have attracted just 0.1 percent of tech startup capital raised in Latin America and the Caribbean. Startup growth is often constrained by difficulties in gaining access

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324   https://time.com/6166459/guatemala-migration-economy-remittances/

to financial resources needed for capital requirements and business operations, and availability of qualified candidates for hiring needs. There are only a few startup support centers such as incubators and accelerators, mostly concentrated in Guatemala City and a few other cities of major commercial activity.

Development Hypothesis: If business support organizations can develop facilities, networks, and services that enable inclusive digital entrepreneurship, then more Guatemalan entrepreneurs will successfully engage in digital startups, which in turn will foster employment and socioeconomic development and deter from irregular migration.

What can the international development community do: Leveraging the entrepreneurial culture in Guatemala, international development actors can foster partnerships with entrepreneurship centers or business action units housed within public and private sector institutions to develop more targeted and effective support for tech startups. Guatemala City's *Campus Tec* model for tech hubs can be examined for potential to replicate and scale across the country. This could be done through partnerships with schools and universities as a focal point in many communities.

RELEVANT ACTORS:
- Donors: U.S. International Development Finance Corporation
- Government: MINECO, PRONACOM, SENACYT
- Business support organizations: *Campus Tec Guatemala, Cámara de Comercio de Guatemala (CCG), Cámara de Industria de Guatemala (CIG), Asociación de Exportadores de Guatemala (AGEXPORT),* Impact Hub Guatemala
- Other: *Centro Regional de Promoción de la MIPYME (CENTROPYME), Asociación de la Pequeña y Mediana Empresa (ASOPYME), Asociación Gremial de Empresarios Rurales, Fundación-i;* Wonder Woman Guatemala.

KEY RESOURCES:
- National Entrepreneurship Network
- Alianza CTi (SENACYT, 2021)
- Entrepreneurship Development Projects by PRONACOM (PRONACOM, 2021)

> *This recommendation embodies the Principles for Digital Development, Understand the Existing Ecosystem, Build for Sustainability, and Design for Scale. This recommendation is most relevant to SDGs 8 (decent work and economic growth) and 9 (industry, innovation, and infrastructure).*

7. SUPPORT FINANCIAL REGULATORY EFFORTS FOR SUSTAINED ENFORCEMENT OF *LEY ANTITRÁMITES*

Problem Statement (opportunity/risk): Guatemala has adopted a robust package of policies on entrepreneurship, competitiveness, employment, and education that outline strategic action in support of the digital economy. While these policies and other national digital agendas, plans, and networks are in place, multi-stakeholder collaboration for implementing laws, policies, and regulation enabling the digital economy need support. The most recent regulatory development on digital transformation is the May 2021 *Ley Antitrámites* (Decree 5-2021 Law for the Simplification of Requirements and Administrative Procedures),[325] which is a legal framework for the digitalization of public services including for the simplification of administrative procedures required by citizens and businesses and for digital trade facilitation. An analysis by the National Competitiveness

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325   Curruchich, Selvyn, Virginia Contreras, Norvin Mendoza, VIRGINIA CONTRERAS, Danilo Ramírez, and DANILO RAMÍREZ. 2021. "Entra en vigencia la Ley Antitrámites – Noticias Última Hora de Guatemala." Diario de Centro América. https://dca.gob.gt/noticias-guatemala-diario-centro-america/entra-en-vigencia-la-ley-antitramites/.

Program (PRONACOM)[326] highlighted the range of benefits the *Ley Antitrámites* can have for economic, commercial, and public sector activities including for the right to access information on procedure status, elimination of unnecessary procedures, prohibition of paper documents, validation of physical and electronic firms, e-payment modalities, e-government adoption, and creation of e-portals. There is a need to support the Ministry of Economy (MINECO) and the National Electronic Government Commission (GAE) to sustain *Ley Antitrámites* implementation efforts beyond the current administration.

Development Hypothesis: If the Government of Guatemala is supported to implement *Ley Antitràmites* to streamline government forms and procedures required for enterprise creation, then the enabling environment for businesses, startups, and well-established companies to adopt and develop digital technologies will improve, which will create new employment and income generation opportunities and ultimately disincentivize irregular migration.

What can the international development community do: International development actors can leverage their existing networks, projects, and institutional experience to support MINECO and its key dependencies such as PRONACOM to address any existing bottlenecks in implementing the *Ley Antitrámites*. It is important to explore new, more local partners and networks in this type of work so that inclusion and decentralized needs, voices, and capabilities are sure to have a seat at the table and be included in any new policy or practical implementation efforts. Assistance could be provided to MINECO, and PRONACOM to design user engagement facilities to customize digital services for individuals and firms to engage with all relevant public online portals that will manage administrative procedures and compliance requirements moving forward.

RELEVANT ACTORS:
- Government: MINECO, PRONACOM

KEY RESOURCES:
- Law for Simplification of Administrative Requirements and Procedures (*Ley Antitrámites*) (MINECO, 2020)
- Alianza CTi (SENACYT, 2021)
- Entrepreneurship Development Projects by PRONACOM (PRONACOM, 2021)
- National Competitiveness Policy (PRONACOM, 2018)
- National Entrepreneurship Policy (MINECO, 2015)

> *This recommendation was created in the spirit of the Principles for Digital Development, "Understand the Existing Ecosystem", "Build for Sustainability", and "Be Collaborative". This recommendation is most relevant to SDGs 16 (peace, justice and strong institutions) and 17 (partnerships for the goals).*

8. PROMOTE THE MAINSTREAMING OF ICT SKILLS AND DIGITAL LITERACY AT ALL EDUCATIONAL LEVELS WITH AN INCLUSIVE, MARKET-DRIVEN APPROACH

Problem Statement (opportunity/risk): Guatemala has a growing youth population with entrepreneurial attitudes conducive to developing businesses and finding jobs in the digital economy. A number of universities offer strong ICT curricula, with *Universidad Galileo* becoming the first edX member among Latin American universities. However, Guatemala's national curricula do not include computational thinking elements that are essential for children and youth to develop relevant competencies and skills for the digital economy. Improved digital literacy can open doors for participation in the digital economy and, increase incomes, and reduce economic inequality.

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326   "Ley de Simplificación de Trámites y su impacto en la competitividad nacional." 2021. PRONACOM. https://www.pronacom.org/2021/11/01/simplificacion-de-tramites-guatemala-competitividad/.

Development Hypothesis: If the international development community develops new programs and partnerships on digital skills development and ICT education, more Guatemalan children and youth will acquire the relevant skills and competencies to find employment in the digital economy, which will improve both community resilience and national-level competitiveness, addressing a root cause of migration (lack of economic opportunities in competitive sectors).

What can the international development community do: International development actors can play an important role in developing partnerships and activities that take an inclusive approach to building digital competencies by supporting the Ministry of Education to include ICT skills development in national curricula at all educational levels. While the previous administration started revising the national curriculum for ICT skills in lower secondary, this effort was halted by the current administration prior to the COVID-19 pandemic. A productive starting point could be convening a technical working group with members from universities, schools, and the private sector to draft a roadmap for the next education authorities to address Guatemala's digital skills development gaps.

International development actors can also partner with local organizations to identify youth digital champions in locations where public education is lacking technology resources or teacher skills. Special emphasis can be placed on tailoring curricula to meet the needs, vulnerabilities, and learning style of girls and Indigenous students. While MINEDUC started similar pilots with entities like *Funsepa*, *Empresarios por la Educación*, their progress and impact is unclear. The international development community can also consider engaging the private sector to invest in apprenticeship and internship programs to ensure better job-matching. This effort could be paired with digital literacy trainings that focus on boosting participants' economic potential.

RELEVANT ACTORS:

- Government: National Education Council (CNE); Ministry of Education (MINEDUC); Ministry of Labor and Social Welfare (MINTRAB); National Technical Institute for Training (INTECAP)
- Academia: *Universidad del Valle de Guatemala (UVG); Universidad Galileo; Universidad Rafael Landivar (URL); Universidad San Carlos de Guatemala (USAC)*
- Other: *Cámara Guatemalteca de Educación*; UN Women

KEY RESOURCES:

- ICT4E How-To Note (USAID/Education Links, 2019)
- A Roadmap for Measuring Distance Learning (USAID/Education Links, 2021)
- Digital citizenship and cybercrime prevention" Educational Project in Guatemala (UNODC, 2021)
- Does schooling reduce juvenile delinquency? (Yu Aoki, 2010)
- Education and Youth Crime (Chris van Klaveren, 2013)
- Education Links (USAID, 2021)
- Promotion of digital education in Guatemala (UNESCO, 2022)
- Proposal to transform education in Guatemala (CIEN, 2020)
- National Base Curriculum (MINEDUC)
- Education as a tool to preventing crime and promoting a culture of lawfulness (UNODC, 2017)
- National Employment Policy (PNED, 2017)
- Tackling Youth Crime (Ravinder Barn and Balbirn S. Barn, 2010)
- Digital Community Centers (New Sun Road, 2020)

> *This recommendation embodies the Principles for Digital Development, Understand the Existing Ecosystem, Build for Sustainability, and Reuse and Improve. This recommendation is most relevant to SDGs 4 (quality education), 8 (decent work and economic growth), and 10 (reduced inequalities).*

9. BUILD MORE ROBUST CYBERSECURITY POLICY, CAPACITY, AND AWARENESS

Problem Statement (opportunity/risk): Cybersecurity policy, capacity at all levels (government, organization, and citizen), and awareness are not keeping pace with the heightened cybersecurity risks associated with digital transformation. While a National Cybersecurity Strategy was launched in 2018, implementation requires support to maintain the protection of citizens and organizations from the misuse of personal information online.

Development Hypothesis: If international development actors support cybersecurity policy implementation and promotes capacity building and awareness raising, more Guatemalans can safely use more secure and resilient digital systems and networks, which will lead to decreased threats to public and private online systems and increased citizen trust in and engagement with online public and private platforms.

What can the international development community do: Actors can help elevate the topic of cybersecurity as being critical to Guatemala's continued development. There is opportunity to provide support at the policy and activity levels. This can be done through working with the Government of Guatemala to create cybersecurity working groups that include not only government personnel but also technical experts. These working groups can be responsible for ensuring implementation of distinct pieces of the National Cybersecurity Strategy. Special attention should be given to deepening the framework for the protection of critical infrastructure, which was noted to be particularly weak in the 2020 IDB Cybersecurity Report.[327] International development actors can build on existing efforts and partner with Government institutions like the Ministry of Interior (*Ministerio de Gobernación* MINGOB) and its CSIRT-gt, the Commission of Open and Electronic Government (GAE). In providing this support, refer to the USAID Cybersecurity Primer[328] for foundational information on cybersecurity in the context of achieving development objects and then leverage the NIST Cybersecurity Framework[329] as a key resource when guiding the GoG in creating actionable cybersecurity working groups. International development actors can also provide training on cybersecurity best practices to target stakeholder groups including the private sector, government officials, and members of civil society. The training can focus on a range of issues specific to each stakeholder group. It is important to ensure the right individuals from each organization attend (few organizations have dedicated cybersecurity teams, cybersecurity is likely a cross-functional obligation, which means identifying target participants may be difficult). It is also relevant to consider designing and delivering online awareness raising campaigns targeted for vulnerable groups and to conduct more in-depth research on cybersecurity in Guatemala in support of future awareness raising campaigns.

RELEVANT ACTORS:

- CSOs: INCIBE, UDEFEGUA, IPANDETEC (Regional)
- Academia: *Universidad del Valle de Guatemala (UVG), Universidad Galileo*
- Government: MINGOB, GAE

KEY RESOURCES:

- USAID Cybersecurity Primer (USAID, 2021)
- Cybil portal[330]
- NIST Online Informative Reference Catalog (NIST, 2022)

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327 "CYBERSECURITY: RISKS, PROGRESS, AND THE WAY FORWARD IN LATIN AMERICA AND THE CARIBBEAN." 2020. Interamerican Development Bank. https://publications.iadb.org/publications/english/document/2020-Cybersecurity-Report-Risks-Progress-and-the-Way-Forward-in-Latin-America-and-the-Caribbean.pdf.

328 "Cybersecurity Primer | U.S. Agency for International Development." 2021. USAID. https://www.usaid.gov/digital-development/usaid-cybersecurity-primer.

329 "Cybersecurity Framework | NIST." n.d. National Institute of Standards and Technology. December 12, 2022. https://www.nist.gov/cyberframework.

330 This resource provides a repository on past and present international cybersecurity capacity building projects.

- NIST Cybersecurity Framework - Success Stories (NIST, 2021)
- OAS Cybersecurity Program (OAS, 2021)
- National Capabilities Assessment Framework (European Union Agency for Cybersecurity, 2020)
- Raising Awareness on Cybersecurity (European Union Agency for Cybersecurity, 2021)
- Cybersecurity capacity review (The World Bank, 2019)

> *This recommendation emphasizes the importance of cybersecurity in a way that draws from the Principles for Digital Development, "Be Collaborative" and "Address Privacy and Security". This recommendation is most relevant to SDGs 12 (responsible consumption and production) and 11 (sustainable cities and communities).*

RECOMMENDATIONS FOR THE GOVERNMENT OF GUATEMALA (GOG)

This section contains summaries of the recommendations from the previous section (see table 5) that are specifically relevant for the Government of Guatemala (GoG). While the DECA was not designed with the intention of making recommendations directly to the GoG, the research revealed the need for various policy level changes and for policy implementation support in order for the country to fully realize the potential of its digital ecosystem.

GoG RECOMMENDATIONS

- Advance telecommunications policy and regulation refinement and implementation
- Leverage digital technologies to improve public service delivery
- Follow through on national financial inclusion strategy implementation
- Build more robust cybersecurity policy, capacity, and awareness

1. ADVANCE TELECOMMUNICATIONS POLICY AND REGULATION REFINEMENT AND IMPLEMENTATION

✧ *See DECA Recommendation #2 for more details.*

Background: The expansion of affordable and inclusive connectivity infrastructure in Guatemala is held back by inconsistent policy prioritization and implementation. There are a few actions the GoG can take to avoid deepening regional and in-country digital divides: increase transparency and independence of the telecommunications regulator (SIT); modernize the regulatory framework in support of competition; and follow through on policy implementation.

Relevant GoG entities: SIT, SEPREM, MINECO, Municipal Government Leaders, MINFIN, MINGOB

What can the GoG do:

- **Create a National Broadband Plan,** which can be done by renewing the work supported by the Alliance for Affordable Internet (A4AI).[331] The 2021 A4AI Affordability Report provides a guide on how to support governments to promote competitive and diverse telecom markets.[332]

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331 "Coalición Guatemalteca para una Internet Asequible (A4AI-Guatemala)." n.d. Alliance for Affordable Internet. December 12, 2022. https://a4ai.org/where-we-work/guatemala/.

332 "Affordability report 2021," Alliance for Affordable Internet, May 26, 2022. https://a4ai.org/research/affordability-report/affordability-report-2021/

- **Openly commit to policy and regulatory reform** in the telecommunications sector by signing a deal on digital development (a 2018 example from Colombia could be used for guidance).[333]

- **Refine and implement policy and regulation on key issues** such as spectrum management, competition promotion, cybersecurity of critical infrastructure, exploration of alternative connectivity, internet affordability, and digital inclusion of Indigenous populations.

2. LEVERAGE DIGITAL TECHNOLOGIES TO IMPROVE PUBLIC SERVICE DELIVERY

⊘ *See DECA Recommendation #3 and DECA Recommendation #5 for more details.*

Background: The most recent regulatory development on digital transformation is the May 2021 *Ley Antitrámites* (Decree 5-2021 Law for the Simplification of Requirements and Administrative Procedures),[334] which is a legal framework for the digitalization of public services including the simplification of administrative procedures required by citizens and businesses and digital trade facilitation. An analysis by the National Competitiveness Program (PRONACOM)[335] highlighted the range of benefits the law can have for economic, commercial, and public sector activities including for the right to access information on procedure status, elimination of unnecessary procedures, prohibition of paper documents, validation of physical and electronic signatures, e-payment modalities, e-government adoption, and creation of e-portals. However, there is a need to support the Ministry of Economy (MINECO) and the National Electronic Government Commission (GAE) to sustain the law's implementation efforts beyond the current administration. Aside from the unclear implementation of this recent law, public services in Guatemala are unequally accessible across sectors, require quality improvements, and involve complex procedures. There is a need for the GoG to commit to expanding affordable and inclusive internet in tandem with creating a digital government strategic plan that promotes the application of digital technologies for transparent, effective, citizen-centered, quality public service delivery.

Relevant GoG entities: GAE, MINEDUC, MSPAS, MINECO, PRONACOM, MINFIN, SIB, and other institutions delivering public services

What can the GoG do:

- **Create a Digital Government Strategic Plan in line with the implementation of the May 2021 *Ley Antitrámites*** (Decree 5-2021 Law for the Simplification of Requirements and Administrative Procedures), focusing on improving public service delivery for vulnerable and marginalized groups in Guatemala. Emphasis could be placed on the promotion of transparent data systems that are interoperable across government agencies and government levels (central to local). The GoG might also need to ensure that all government digitalization efforts carried out under the law include the cybersecurity of those newly digitalized systems and services.

- **Streamline and ensure implementation of procedures and form digitalization targeted by *Ley Antitrámites*.** MINECO and PRONACOM could consider designing user engagement facilities to customize digital services for individuals and firms to engage with all relevant public online portals that manage administrative procedures and compliance requirements. To more rigorously monitor the

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333 "Candidatos colombianos firman pacto social por derechos humanos." 2018. DW. https://www.dw.com/es/candidatos-colombianos-firman-pacto-social-por-derechos-humanos/a-43920520.

334 Curruchich, Selvyn, Virginia Contreras, Norvin Mendoza, VIRGINIA CONTRERAS, Danilo Ramírez, and DANILO RAMÍREZ. 2021. "Entra en vigencia la Ley Antitrámites – Noticias Última Hora de Guatemala." Diario de Centro América. https://dca.gob.gt/noticias-guatemala-diario-centro-america/entra-en-vigencia-la-ley-antitramites/.

335 "Ley de Simplificación de Trámites y su impacto en la competitividad nacional." 2021. PRONACOM. https://www.pronacom.org/2021/11/01/simplificacion-de-tramites-guatemala-competitividad/.

implementation of the law, the effectiveness of digital government services in supporting competitiveness, innovation, employment, and inclusive access to social services can be assessed. MINECO, PRONACOM, and GAE can either work together to design an evaluation framework or seek outside support from international organizations, private sector research firms, or academic research institutions.

- **Increase citizen awareness of existing digital government services.** This can be done through multi-pronged awareness campaigns launched via social media, radio, and TV. This could also be done using a road-show model where citizens have the opportunity to receive training and practice using the public service platforms. The aim would be for more citizens to understand the value of using digital government services, and the internet more broadly. It is important that the awareness campaigns are designed to include all users. This means content is provided in Indigenous languages and can accommodate users with disabilities and varying levels of literacy and digital literacy. The awareness campaigns should also include elements of cyber hygiene awareness to ensure that all users are able to safely access and use the government digital services.

- **Support local governments to expand affordable access to the internet and adopt secure, inclusive applications of digital technologies in public service delivery.** Ensure inclusion and user-centered design is at the forefront of government digitalization efforts. This includes making sure information and services on government digital platforms are available in Indigenous languages, account for users with lower literacy and digital literacy levels, are designed to include populations with disabilities, and function on lower internet speeds. This includes making sure appropriate cybersecurity measures are taken to ensure user safety.

- **Identify opportunities to scale successful efforts that improve public service delivery through the use of digital technologies.** The GoG could identify examples from across government entities and levels where digital technologies are being used to improve public service delivery (transparency, efficiency, inclusiveness) and seek support for evaluating their success and scalability. Existing examples include digital public services offered by SAT and MINFIN such as electronic tax documents and electronic invoicing for providers to the State.

- **Encourage a culture of data-driven decision making at all levels of government.** GoG could seek expertise to provide capacity building on topics such as digital data collection, storage, and use. Data literacy can equip government decision-makers to understand access inequities when it comes to digital government services (e.g., related to geography, gender, income, or Indigenous status).

3. FOLLOW THROUGH ON NATIONAL FINANCIAL INCLUSION STRATEGY IMPLEMENTATION

✅ *See [DECA Recommendation #5](#) for more details.*

Background: In recent years, digital financial services (DFS) have grown in terms of quantity and diversity of offerings in Guatemala including for a range of population segments such as remittance recipients, small businesses, individual customers, and large enterprises. However, less than a half of Guatemalans have a bank account and over two thirds of the population do not use DFS. While Guatemala's Superintendencia de Bancos (SIB) reports a different set of financial inclusion indicators, they might want to also fully capture socioeconomic and demographic characteristics of underserved population segments. As a result, there is a mismatch between how policymakers and financial service providers perceive the financial needs and preferences of different customer segments and their actual needs and preferences. The GoG might also benefit from better understanding diverse customer segments and committing to sound implementation of a new National Financial Inclusion Strategy.

Relevant GoG entities: SIB, MINECO, BANGUAT, MINFIN, SAT

What can the GoG do:

- **Commit to tracking the last year of implementation of the 2019 - 2023 National Financial Inclusion Strategy (ENIF) and initiate plans for an updated strategy.** This could include coordination amongst SIB, MINECO, BANGUAT, MINFIN, MINEDUC, and SAT to systematically identify and make plans to address implementation gaps. Given a new administration will take office in January 2024, updating the strategy could be intentionally included in conversations among transition teams.

4. BUILD MORE ROBUST CYBERSECURITY POLICY, CAPACITY, AND AWARENESS

See [DECA Recommendation #9](#) for more details.

Background: Cybersecurity policy, capacity at all levels (government, organization, and citizen), and awareness are not keeping pace with the heightened cybersecurity risks associated with digital transformation. While a National Cybersecurity Strategy was launched in 2018, implementation requires support in order to maintain the protection of citizens and organizations from the misuse of personal information online.

Relevant GoG entities: MINGOB, GAE

What can the GoG do:

- **Establish cybersecurity working groups composed of technical experts and relevant GoG personnel.** The working groups would be responsible for ensuring implementation of distinct pieces of the National Cybersecurity Strategy. Special attention should be given to deepening the framework for the protection of critical infrastructure, which was noted to be particularly weak in the [2020 IDB Cybersecurity Report].[336] The GoG could refer to the [NIST Cybersecurity Framework][337] and the [NDI Cybersecurity Campaign Playbook][338] as key resources when seeking to create actionable progress through cybersecurity working groups.

- **Mandate cybersecurity training for all GoG staff at all levels and across entities.** The training could be based on the [NIST Cybersecurity Online Learning Framework] (available in Spanish and English).[339] The NIST is framed around five key functions: identify, protect, detect, respond, and recover. A sustainable model for large-scale upskilling of government personnel could be to identify and train cybersecurity champions within each government entity. They could then be responsible for remaining up to date on the latest cybersecurity best practices and risk mitigation techniques and sharing that information and facilitating training (or training-of-trainers) within their entities.

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337 "Guatemala - Guatemala." n.d. National Democratic Institute. December 12, 2022. https://www.ndi.org/latin-america-and-caribbean/guatemala.

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Appendices

A. GOVERNMENT OF GUATEMALA - KEY PLAYERS
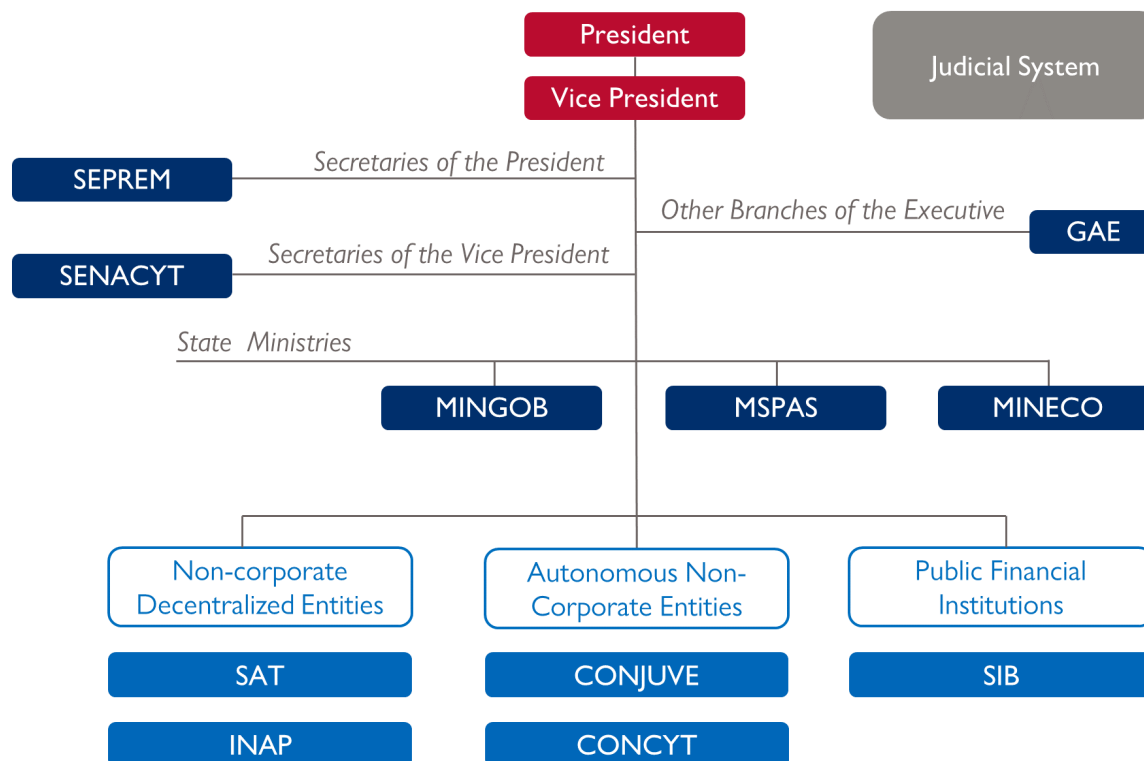
TABLE 6. Government of Guatemala key entities

GOVERNMENT ENTITY NAME	DESCRIPTION
CONCYT	The National Science and Technology Council (CONCYT) is the governing body in the field of scientific and technological development in the country and is responsible for promoting and coordinating the scientific and technological activities carried out by the National Science and Technology System.
CONJUVE	The National Youth Council (CONJUVE) is attached to the Presidency of the Republic through Government Agreement 405 – 96, Law of the Executive Organism, that establishes within the different organs of the Executive the formulation and execution of Government policies designed to support participation of youth in the integral development of Guatemala. The institution's main objective is to establish processes that lead to the development of legal frameworks and public policies that respond to the multiple demands of the youth of Guatemala.

GOVERNMENT ENTITY NAME	DESCRIPTION
GAE	The Commission on open and electronic government (GAE) is the presidential commission that promotes transparency and innovation in the Executive Branch, through the implementation of national and international instruments in the field of open and electronic government.
INAP	The Institute of Public Administration of Guatemala (INAP) is responsible for building the capacity of public institutions and dependencies to be more efficient and effective in their administration and services.
MINECO	Guatemala's Ministry of Economy (MINECO) is responsible for managing national economic development processes by creating investment and employment opportunities, fostering competitiveness and access to foreign trade, and developing micro-, small- and medium-sized enterprises. MINECO is in charge of formulating and executing consumer protection and competition policies; administering policies on domestic and foreign investment; fostering competitiveness and industrial and commercial development.
Ministry of Finance	The Ministry of Public Finance of Guatemala (MINFIN) is the institution that formulates fiscal and financial policy for the short, medium, and long term based on the economic and social policy of the Government. MINFIN contributes to the implementation of a sustainable fiscal policy, through management of income, expenses and public debt, to strengthen social development and national economic growth.
MINGOB	The Ministry of the Interior (MINGOB) executes judicial orders and resolutions, administers the prison system, leads and regulates the security forces, and oversees policies related to peacekeeping, public order, and internal security for the benefit of the Guatemalan population.
MSPAS	The Ministry of Public Health and Social Assistance of the Republic of Guatemala (MSPAS) formulates policies and enforces the legal regime related to preventive and curative health and actions for the protection, promotion, recovery, and rehabilitation of physical and mental health of the country's inhabitants and the hygienic preservation of the environment.
Organismo Judicial	The *Organismo Judicial* (OJ) of Guatemala imparts justice in accordance with the Political Constitution of the Republic of Guatemala and the values and norms of the country's legal system. The Judicial Body is divided into two areas: Jurisdictional and Administrative. The supreme body is the Supreme Court of Justice. The Judicial Body is currently made up of 619 courts, as follows: the Supreme Court of Justice, 30 rooms of the Court of Appeals, 218 Courts of First Instance, 370 Courts of Peace.
PRONACOM	The National Competitiveness Program (PRONACOM) engages government institutions, private sector entities, academia, and civil society, to develop human and business capital competitiveness to create investment opportunities aimed at fostering Guatemala's decentralized development, improving livelihood conditions for Guatemalans, and creating formal employment.
La Ruta	La Ruta is an initiative of the Guatemalan government dedicated to intercultural relations between various actors of the Guatemalan community. La Ruta supports channeling resources from the State and from international cooperation to Indigenous communities where there has historically been a tendency to migrate due to lack of opportunities. Through four transversal axes, they create and promote opportunities for the rural population of Guatemala, supporting them to participate in their own development.
SAT	The *Superintendencia de Administración Tributaria* (SAT) is Guatemala's tax revenue authority, responsible for collecting tax revenues and managing customs. SAT is a decentralized agency with autonomy on economic, financial, technical, and administrative matters.
SENACYT	The National Secretariat of Science, Technology and Innovation (SENACYT) promotes the generation and use of science, technology and innovation, building collaboration spaces between the academic, public, and civil society sectors to promote the development of Guatemala. As a coordinating body, it is responsible for supporting and executing the decisions of CONCYT and following up on their respective actions, through the efficient use of FONACYT financial resources.

GOVERNMENT ENTITY NAME	DESCRIPTION
SEPREM	The Presidential Secretariat for Women (SEPREM) advises and coordinates public policies to promote the development of Guatemalan women and the promotion of a democratic culture. It is a technical advisory institution and works under the immediate leadership of the Presidency of the Republic. Its work is aimed at providing technical and methodological support to public institutions and local governments to support policy equity between men and women. SEPREM is the highest level mechanism of the Executive Branch for the advancement of women.
SIB	The *Superintendencia de Bancos* (SIB) operates under the direction of Guatemala's Monetary Board to oversee and inspect public- and private-sector institutions undertaking banking and financial activities. SIB oversees Guatemala's Central Bank and private sector institutions that include: banks, financial societies, credit institutions, insurance companies, offshore entities, general deposit warehouses, exchange houses, financial groups, among others.
SIT	The *Superintendencia de Telecomunicaciones* (SIT) is a technical body of the Ministry of Communications, Infrastructure, and Housing. SIT manages the operation of the radio spectrum, grants licenses to telecommunications providers, resolves disputes, ensures producer compliance with legislation, and promotes international treaties and agreements.

B. DEFINITIONS

Definitions from <u>USAID DECA Toolkit</u> 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.

Agent/Branchless banking: The delivery of banking services outside conventional bank branches, usually through a network of agents equipped with point of sale devices or mobile phones. Agents can take many forms including individuals at small shops, petrol stations, and supermarkets. Financial services provided by agents can include cash-in and cash-out points, credit, loans, insurance, bill payment, and person-to-person transfers.

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."

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

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 that individual or 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 find themselves excluded from these services. Often, one can point to multiple and overlapping digital divides, which stem from inequities in access, literacy, cost, or the relevance of services. Factors such as high cost and limited infrastructure often exacerbate digital divides.

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

Digital Ecosystem: The stakeholders, systems, and enabling environment that together empower people and communities to use digital technology in order to gain access to services, engage with each other, or pursue economic opportunities. Although certain aspects of the digital ecosystem have country-wide reach, other features differ across geographies or communities. USAID's framework for understanding the digital ecosystem is structured around three pillars: Digital Infrastructure and Adoption; Digital Society, Rights, and Governance; and Digital Economy.

Digital Financial Inclusion: The use of digital technology to reach financially excluded and underserved populations with a range of formal financial services that are suited to their needs and are 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. This includes how the government manages internal information technology (IT) processes and systems, delivers citizen- and business-facing e-services, and engages with the public through digital channels. Digital government is often used interchangeably with terms like "e-governance" and "e-government."

Digital Identity: A set of attributes that uniquely describes 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, or donors or NGOs for functional purposes 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—e.g., bank, switch, MFI, or payment service provider— might facilitate these payments to or from a range of instruments. Instruments might 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 and 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 seek to suppress freedoms in online and offline spaces.

Digital Rights: The fundamental rights and freedoms that individuals can exercise online,[340] as well as a respect for privacy and ownership of data.[341]

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 to cause 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.

Financial Access Point: Locations where individuals can carry out banking or transaction activities such as cash withdrawals, deposits, or balance checks. These include, for example, ATMs, bank branches, and banking agents.

Emerging Technologies: Technologies for which ethical, policy, and regulatory frameworks are struggling to keep pace with the rate of technological progress. They often lack rigorous testing in the real world, so their implications on people and societies remain less well-understood. These include artificial intelligence (AI), the internet of things (IoT), blockchain, drones, and 3D printing, among others. As these technologies become more affordable and widespread, they may have a significant impact on digital ecosystems and on development more broadly.

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, etc.).

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340 ICCPR Article 19, https://www.ohchr.org/EN/ProfessionalInterest/Pages/CCPR.aspx

341 ICCPR Article 17, https://www.ohchr.org/EN/ProfessionalInterest/Pages/CCPR.aspx

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 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.

Interoperability: The ability of computer systems or software to exchange and make use of information from other systems. For example, 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 the end-users access 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. Note that these information are based on reality but are used and disseminated to cause harm. An example is a report that reveals a person's sexual orientation without public interest justification.

Media Literacy: The ability to access, 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 for citizens of a democracy.

Misinformation: Information that is false, but not intended to cause harm. For example, individuals who do not know a piece of information is fse may spread it on social media in an attempt to be helpful. Note that disinformation is a type of misinformation—disinformation 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, due to the fact that they are not shared, tend to deliver a higher quality, more reliable (and more cost-intensive) service.

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 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., WiFi) are *unlicensed*, meaning that anyone

can use them without seeking explicit prior permission.[342] *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 seek to establish the economic value of spectrum—which is a finite natural resource.

Transparency: An environment where governments and public officials engage in the clear disclosure of rules, plans, processes and actions in a form that is readily accessible to all. Transparency promotes accountability by providing the public with information about what the government is doing.

TV White Space: The unused spectrum between TV stations that can be capitalized upon for increased connectivity. This block of spectrum is considered ripe for innovation and experimental use, holding rich potential for expanding broadband capacity and improving access for many users, and for developing technologies that can expand this type of spectrum access to other frequencies and services to greatly increase our ability to use spectrum.

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 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.

Virtual Currency: No globally accepted definition exists, but a virtual currency can be considered a digital representation of value intended to be used as a medium of exchange, unit of account, or store of value. It is not issued by a government and not treated as legal tender. As an umbrella term, virtual currency can include fully decentralized cryptocurrencies like Bitcoin as well as alternatives that are issued, stored, transacted, or redeemed in a centralized fashion. Virtual currencies are distinguished from proposed government-issued digital forms of cash, typically referred to as central bank-issued digital currencies, or CBDCs.

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342   Permissions are not required for unlicensed spectrum use, but users are typically limited to technical parameters such as transmission power or antenna specifications.

C. METHODOLOGY

The Guatemala DECA included three components:

A. <u>USAID/Guatemala engagement:</u> USAID/Guatemala designated a Mission DECA Team led by the Digital Development Advisor and comprised of representatives from across the Mission's technical offices. The Mission DECA team identified stakeholders; reviewed relevant documents during planning, interviews, and the analysis and report-writing stages; and attended interviews during the interview phase.

The Mission DECA Team also helped organize the Post-Interview Presentation/Recommendations Workshop with USAID/Guatemala two weeks after the interview phase was complete. These meetings were important to co-create actionable recommendations and share preliminary findings with USAID/Guatemala.

This engagement was important not only for ensuring an appropriate mix of interviewees but also for building the Research Team's understanding of USAID/Guatemala's priorities.

B. <u>Desk research:</u> The desk research used a standardized template organized around three pillars: digital infrastructure and adoption; digital society, rights, and governance; and digital economy. The desk research included three components: 1) review of USAID/Guatemala's CDCS and digitally relevant programming; 2) quantitative analysis of open-source data and indices to produce regional comparisons (e.g., GSMA, World Economic Forum, International Telecommunication Union); and 3) internet research guided by high-level questions under each pillar about the state of Guatemala's digital ecosystem.

The Research Team shared the desk research with the Mission DECA Team before interviews and used it to inform the interview guide questionnaires.

C. <u>Virtual Interviews:</u> The Research Team collaborated with USAID/Guatemala to compile a list of target stakeholders across civil society, academia, international organizations, the private and public sectors, and within USAID/Guatemala. The Research Team's and USAID/Guatemala's networks secured initial interviews. Additional interviewees were added throughout the research process through referrals from completed interviews.

During the interview phase, the Research Team conducted anywhere from two to five interviews per day. 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 between interviews and interview partners. 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 and Appendix C show the 76 interviews by sector (informed by 27 female interviewees, and 50 male interviewees).

FIGURE 21. Guatemala DECA interviews, by sector
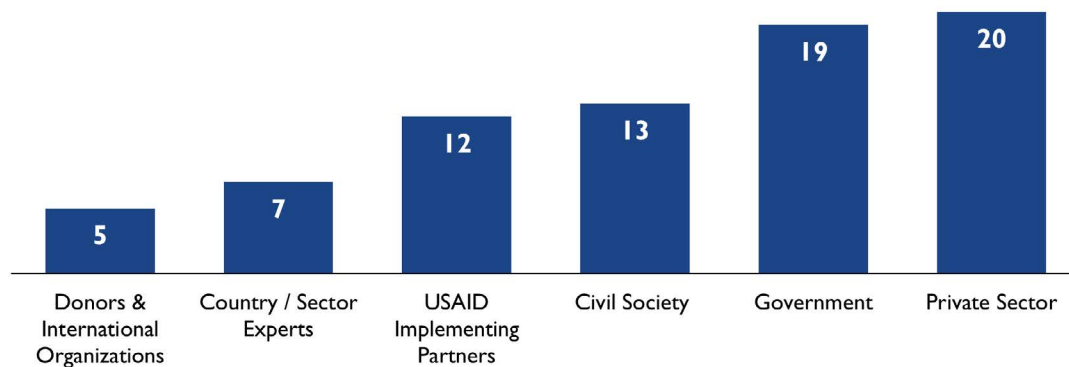
D. <u>Focus Group Discussions:</u> The team carried out five focus group discussions, three organized in partnership with the USAID/Guatemala Creating Economic Opportunities (CEO) project (carried out by Palladium) and two with the Innovative Solutions for Agricultural Value Chains (carried out by *Agropecuaria Popoyán*). The focus groups included participants from geographically diverse locations and an almost even composition of women and men. See Appendix E for a detailed summary of the focus group discussions methodology and results.

Analysis

The team conducted weekly debriefs during the interview phase. These meetings not only ensured that all team members were briefed on each interview but also facilitated the triangulation of emerging themes that could then be tested in subsequent interviews. Midway through the interviews, the team identified primary themes based on these initial findings. Upon completing the interview phase, the team convened to revisit these themes, confirmed their validity against interview notes, and organized the findings around the three pillars outlined in this report (digital infrastructure and adoption; digital society, rights, and governance; and digital economy). In order to ensure rigorous analysis, the Research Team used the qualitative analysis software, Dedoose, to identify key findings around each DECA topic.

Limitations

Research Team members were limited, to an extent, by their technical expertise. Team members were chosen to provide coverage of key technical areas identified in a preliminary review, particularly around digital adoption, digital trade and internet freedoms. This may have introduced some bias—weighting the specializations of team members more heavily than areas such as digital literacy, digital government, and digital finance.

Many interviewees were selected through USAID/Guatemala and Research Team networks, which may have excluded stakeholders who are less comfortable engaging with U.S. Government representatives. Given connectivity issues and the location of most experts, interviews were for the most part limited to urban centers.

Research team

The Research Team was composed of five digital development generalists and specialists. Team members who were technical experts attended most interviews that were relevant to their expertise.

D. INTERVIEWEE ORGANIZATIONS

Civil Society	
1	Internet Society
2	*Ak'Tenamit*
3	*Ojoconmipisto*
4	Protection Unit for Women Defenders and Defenders of Rights Humans Guatemala (*UDEFEGUA*)
5	JusticiaYa / Instituto 25a
6	*La Ruta*
7	*Plaza Publica*
8	*Confirmado*
9	Association for Research and Social Studies (ASIES)
10	Central American Institute of Fiscal Studies (ICEFI)
11	*Sotz'il*
12	Ceiba Group
13	Foundation for the Development of Guatemala (FUNDESA)
Country or Sector Experts	
14	Gender Expert
15	*Universidad del Valle de Guatemala* (UVG) (1)
16	*Universidad del Valle de Guatemala* (UVG) (2)
17	Inter-American Development Bank (IDB)
18	National Institute of Cybersecurity (INCIBE)
19	Wonder Woman Guatemala
20	Bright Domino
Donors/INGOs	
21	German Society for International Cooperation (GIZ)
22	United Nations Educational, Scientific and Cultural Organization (UNESCO)
23	Spanish Agency for International Development Cooperation (AECID)
24	Humanist Institute for Development Cooperation (HIVOS)
25	UN Women
Government of Guatemala	
26	DW Akademie
27	*Superintendencia de Telecomunicaciones* (SIT)
28	National Secretariat of Science and Technology (SENACYT)
29	Representative of Congress
30	National Youth Council (CONJUVE)
31	Presidential Secretariat for Women (SEPREM)
32	Magistrate of the Judicial Branch
33	Presidential Commission for Open and Electronic Government (GAE)
34	Representative of Congress
35	National Institute of Public Administration (INAP)
36	Private Secretary to Vice President Castillo
37	Technical Institute for Training and Productivity (INTECAP)
38	Ministry of the Economy (MINECO) (1)

39	Ministry of the Economy (MINECO) (2)
40	*Superintendencia de Bancos* (SIB) (1)
41	*Superintendencia de Bancos* (SIB) (2)
42	*Superintendencia de Administración Tributaria* (SAT)
43	Ministry of Finance
Private Sector	
44	New Sun Road
45	Wayfree
46	Microsoft
47	Intel
48	DataGuard
49	SMC+
50	Internet Exchange Point (IXP) Guatemala
51	Claro
52	Amazon Web Services (AWS)
53	Tigo
54	*Campus Tec*
55	PayPal
56	*Banrural*
57	Tigo Money
58	*Pacifiko*
59	*Banco Industrial*
60	AGEXPORT
61	*Micoope*
62	Hugo App
63	Aly AI
64	Guatemala FinTech
USAID Ips	
65	Innovative Solutions for Agricultural Value Chains Project (*Agropecuaria Popoyán*)
66	Justice and Transparency Project (Resonance)
67	Coffee Value Chains Project (Fedecocagua)
68	InfoSegura Project (UNDP)
69	Integrated Response on Migration Project (IOM)
70	Urban Municipal Governance Project (Tetra Tech)
71	Puentes Project (World Vision)
72	Data.Fi (Palladium)
73	*Nexos Locales* (DAI)
74	Consortium for Elections and Political Process Strengthening (NDI)
75	Community Roots Project (World Vision)
76	Health and Education Policy Project Plus (Palladium)

E. FOCUS GROUP DISCUSSION SUMMARY

Background

As part of the interview phase, the Guatemala DECA research team conducted five focus group discussions (FGDs) with USAID/Guatemala project participants. The goal was to gather qualitative information directly from the population with whom the Mission works with about how they understand, use, and access digital technologies in their daily lives. The majority of DECA interviews were with stakeholders located in major cities, that represented higher socioeconomic groups, or worked with but were not members of the marginalized or vulnerable groups that USAID/Guatemala works with. The FGDs provided an opportunity to hear directly from project participants about their user-level experiences.

Method

FGDs were organized with help from the USAID/Guatemala Creating Economic Opportunities (CEO) project and *Agropecuaria Popoyán*, a local Guatemalan agribusiness. CEO works with small business owners, and invited a selection of these entrepreneurs from three different geographic areas (*Quetzaltenango*, *Huehuetenango*, and the Department of Guatemala). *Agropecuaria Popoyán* provides high quality agricultural inputs, integrated pest management solutions, and training to Guatemalan farmers around sustainable agricultural practices. They currently implement the USAID/Guatemala *ProInnova* project. They invited users of their *AgriConecta* tool, an app that provides agricultural, climate, and pricing information for farmers.

Five FGDs were held during January 2022. The conversations were around 1.5 hours each. Three focus groups were with entrepreneurs from the CEO project and two groups were with farmers from *Agropecuaria Popoyán*. All groups had both female and male participants. All participants connected virtually via Google Meet video calls and each discussion was facilitated by a member of the DECA research team.

Demographics

The FGDs had a total of 33 participants, 18 female and fifteen male. Twenty-eight of the 33 participants filled out the Participant Information Sheets containing demographic information. The 28 respondents ranged in age from 16 to 67 years old.

Participants were about equally divided between identifying as Indigenous or non-Indigenous, with slightly more (15 respondents) identifying as being from an Indigenous community (Figure 23).

FIGURE 22. Focus group participant Indigenous vs Non-Indigenous
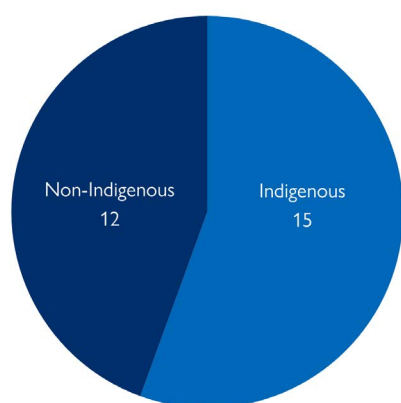
The majority (13) participants completed some or all of university level studies and 10 participants completed some or all technical school studies.

FIGURE 23. Focus group participant education level

Education level	Count
complete primary school	3
incomplete primary school	2
some or complete technical school	10
some or complete university	13
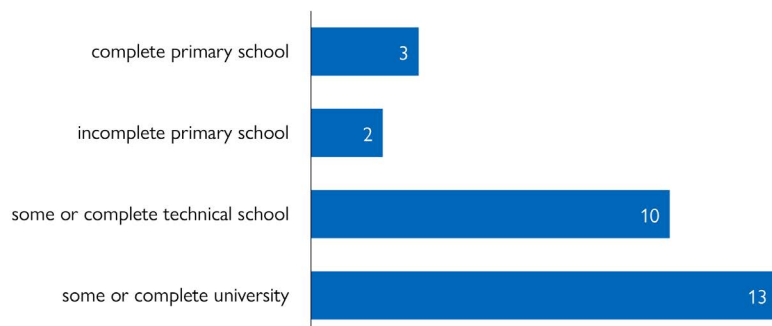
Overview of questions

The questions asked during the FGDs were associated with each of the DECA pillars as well as a few general topics on the impact of the COVID-19 pandemic. Primary topics discussed were as follows:

Pillar 1: Digital infrastructure and adoption

- Use of mobile technology, such as the type of phone that participants owned, as well as what types of apps and social media they used
- Coverage or lack of coverage in the areas where they live and work
- Their impression of cost, plans, and service offered by mobile network operators
- Digital literacy topics such as for what purpose they use the internet, whether they can use it without assistance or instruction from others, and who they ask for help when it is needed

Pillar 2: Digital society, rights, and governance

- If they have ever experienced threats, abuses, or other forms of violence online, and if so, what did they do about the occurrence
- If they feel there are issues of cybersecurity in Guatemala, such as the potential to be hacked or have personal information stolen and if they feel the government has the capacity to act in such cases
- Disinformation topics such as whether they trust information they see online, and how do they know what is correct
- Do they use the internet to complete governmental processes or public services
- Do they think online public services are safe and accessible for vulnerable populations

Pillar 3: Digital Economy

- Do they buy and sell products online and if so, what tools do they use to sell products and services online
- Do they have bank accounts and if so, do they get access to them online
- Do they think it is more difficult to access financial services for vulnerable populations

Impact of the COVID-19 pandemic

- Have they used the internet more since the pandemic
- What sites or services have been most helpful during the pandemic quarantines

Findings

The Focus Group Discussions provided valuable first-hand information from Guatemalans in various parts of the country. One hundred percent of the participants had access to a cell phone although some mentioned sharing phones with other members of their households. Internet use was widespread across all groups and the entrepreneur participants confirmed that it was an essential part of their businesses.

Pillar 1

Participants in all of the FGDs mentioned that telephone signal and internet connectivity outside of urban centers is not always reliable. This seemed to be equal for both major providers, Claro and Tigo. There are sometimes signal outages for hours at a time, which negatively affects the work of both those living in the areas who are trying to access information or to communicate, and those trying to reach customers in the areas of low connectivity.

> "...my wife is a teacher....now that they are asking parents to connect to the internet [to have children study] they have to know that the reality in a village is different with regards to electricity and basic services. Many even charge their phones while at school in order to have them charged and take home. Access to electricity in many villages is limited. This is what limits access to internet in these areas…" - Participant

Most participants also agreed that connectivity is equal across different phone and data plans, even when they have had the experience of purchasing more expensive plans that supposedly offer better speed and signal. Neither provider seemed to be more economical than the other, and both providers have poor customer service when issues arise.

Most of the participants find the internet easy to use, especially when using popular apps such as Facebook, WhatsApp, and Instagram. In cases where they do need to ask for help, they will ask family, friends, or children. One participant mentioned that she knows many people who can only use basic functions and do not know how to use more complex online sites or tools. Another participant mentioned that he was well versed in using a phone since it is his primary tool for getting access to the internet, but felt that if he were to use a computer he would need help.

Pillar 2

Some FGD participants unfortunately had experienced online harassment. In the case of the entrepreneurs, several had received negative or harassing comments on their business accounts or in response to advertisements they had posted on social media. One female *Agropecuaria Popoyán* participant received an attack in the form of offensive pictures being sent to her from anonymous Facebook accounts. Many participants knew people personally who had received online attacks or women who had been the victims of sexual harassment online. Several mentioned that they were reluctant to engage in online discussion or to post personal statements for fear of negative reactions.

One hundred percent of FGD participants had been targets of online scams sent via text, social media, or WhatsApp. Most were aware of these scams and knew they should avoid them, but some had fallen victim to scams or knew people close to them who had. This resulted in the participants or family and friends having personal information compromised or incorrect charges attributed to their accounts. Some of the business owners also had experienced hacks of their business accounts, and several expressed concerns that their businesses were vulnerable to cyber security threats. One *Agropecuaria Popoyán* participant mentioned that

she often asks her husband to help her verify whether messages are credible. Participants talked about the importance of educating their children about online scams and warning them not to give out personal information.

Most felt that cyber attacks or online threats were not a priority for government or law enforcement. They did not believe that there would be any action taken resulting from complaints or that the government had the ability to do anything about such attacks or threats. Participants said they felt vulnerable but none had experience reporting cyber attacks to the government.

Regarding online government services, the most frequent process completed by participants was payment of taxes. The entrepreneur participants reported completing processes such as updates to business permits and licenses. Many mentioned that an increasing number of government services were being transferred online as a result of the pandemic, and this helped them in daily life. Many processes that used to take several hours to do in person could now be completed online in a much more efficient manner. Some participants felt that these processes could be confusing at first, but they were eventually able to complete them successfully. Several expressed that government websites were reliable so they felt their personal information was safe when entering it for government purposes.

The topic of misinformation was discussed in all five FGDs. Many were aware that they could not believe all of information they saw online and understood the need to get news and other information from reputable websites. Many mentioned that a lot of misinformation is spread via social media. Some participants even mentioned that they check multiple sources before believing information they read online.

> "There are dangers [online] that one can't see and can't understand….it's necessary that someone can explain them and share how to avoid them…" - Participant

> "Critical thinking is vital to teach among families from a young age…teaching children how to develop the capacity for critical thinking…so they know what to do with the information they are exposed to…" - Participant

Pillar 3

A small number of the entrepreneur participants have business websites where they sell their products. Most of the business owners and farmer participants use more informal methods for selling products such as WhatsApp or Facebook Marketplace. Some had already been selling products online, but those who were not already doing so started to sell their products online during the pandemic. Many mentioned that social media and WhatsApp were helpful in showcasing their products to customers, as they could share pictures by sending directly or posting. Most of the entrepreneurs had a way to receive payments online via credit card or bank transfer, although some mentioned that not all of their customers are comfortable making purchases online.

Participants in all of the FGDs mentioned risks that exist when making purchases online. Many had experienced fake products or items that were purchased but never arrived. One participant mentioned that they sometimes check Amazon.com to make sure a product is real before making a purchase from an unknown source. Another mentioned that when dealing with an unfamiliar seller they sometimes start out by making a small initial purchase before making a larger purchase.

With regards to formal banking, all of the entrepreneurs had bank accounts but not all of the farmers did. For those with accounts, it was a mix of getting access to bank services on their phone and in person. The FGDs also discussed ease and availability of bank loans. Several noted difficulty for the young or old to be granted a loan; typically young people do not have enough collateral and those over 60 or 70 years old face age discrimination.

When asked whether they felt it was more difficult for vulnerable populations to be granted loans, answers were mixed. Some felt that there might be barriers to Indigenous People receiving services at banks where their local language is not spoken, but others said that banks often hire from the local communities and have employees that speak a range of indigenous languages.

One participant said that she felt men are more likely to get bank loans than women. Several farmer participants said they preferred to get loans from cooperatives because the terms were more favorable. Several business owners said that it was very easy to get loans for things like purchases or credit cards, but harder for them to get loans to invest back into their businesses.

Effect of the pandemic

Due to the COVID-19 pandemic, participants felt that internet use had greatly increased. Businesses had to innovate to meet their clients' changing needs, and the country in general has become more digital-focused.

> "I think that thanks to the pandemic Guatemala has awakened…there are now many private businesses and government entities that have improved the services they offer online." - Participant

Conclusion

The Focus Group Discussions were a successful exercise that enriched the DECA with first-hand information gathered from community members. The discussions validated much of the information gathered during desk research and interviews.

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