

Every Human. A Secure Phone.

Global Smartphone Access,
Stellar, Starknet, and Three Roads to 2030.



PEOPLE
CONNECTED.
OPPORTUNITIES
UNLOCKED.
A BRIGHTER
TOMORROW.

ACCESS
IDENTITY
PAYMENTS
OPPORTUNITY

A MORE
INCLUSIVE
GLOBAL
ECONOMY.

STARKNET
SCALE
DEVELOPER
ECOSYSTEMS
OPEN
OPPORTUNITY

STELLAR
INFRASTRUCTURE
REAL-WORLD
IMPACT.



STELLAR

FINANCIAL ACCESS
FOR EVERYONE.

MONEY MOVES
PEOPLE FORWARD.



STARKNET

SCALABLE INFRASTRUCTURE
FOR A GLOBAL ECONOMY.

BUILDING OPEN
POSSIBILITIES.



THREE ROADS

POLICY, INFRASTRUCTURE,
AND ECOSYSTEMS
TO 2030.

DIFFERENT PATHS.
A SHARED DESTINATION.

WIDER ACCESS.
STRONGER PEOPLE.
BRIGHTER TOMORROWS.

A MORE OPEN,
INCLUSIVE, AND
CONNECTED WORLD.





PEOPLE
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Executive Summary.

Universal smartphone access is a practical infrastructure problem, not a flagship-device fantasy.

This report examines how to expand meaningful smartphone access worldwide, with a focus on Stellar, Starknet, Solana, and Samsung's device ecosystem, and practical steps toward 2030.

PEOPLE
IDEAS
CAPITAL
TECHNOLOGY



5.6B

PEOPLE STILL OFFLINE

~69% of the world has a mobile phone, but 31% (5.6 billion people) remain offline, primarily due to affordability, lack of connectivity, and limited digital trust.

Source: GSMA (2024)



~80%

SMARTPHONE OWNERSHIP IN HIGH-INCOME COUNTRIES

Compared to ~20% in low-income countries, highlighting a persistent global divide.

Source: GSMA Intelligence (2024)



A more open and connected world is within reach — if we build the practical infrastructure, together.

— 10F1 RESEARCH

KEY FINDINGS

REAL PEOPLE. REAL BARRIERS. REAL PROGRESS POSSIBLE.

01



Affordability, Connectivity, and Trust Are the Biggest Barriers.

The main obstacles to universal smartphone access are device affordability, reliable connectivity, and user trust — including privacy, security, and confidence in digital services.

02



No Verified Free Pixel-11-Class Device Exists for Every Country.

There is currently no verified program to provide a free Pixel 11-class smartphone to every person in every country by 2030.

03



Usable Mobile Access Can Still Expand.

Meaningful progress is possible through low-cost Android device support, flexible financing, targeted government and NGO programs, and expanded connectivity solutions.

04



The Report Evaluates Three Roads to 2030.

We analyze three distinct approaches — market-driven expansion, strategic partnerships and subsidies, and device integration and new models — with trade-offs, partners, and timelines.

WHAT THIS REPORT COVERS

FROM TODAY'S REALITIES TO A MORE INCLUSIVE 2030.



GLOBAL SMARTPHONE ACCESS

Current status, regional gaps, and key trends.



DEVICE TIERS

From entry-level Android to premium devices, with real-world use cases.



COUNTRY PROGRAMS AND CONTACT ROUTES

Examples of government, NGO, and industry initiatives, and how to get involved.



TECHNICAL BOTTLENECKS

Connectivity, power, device supply, and infrastructure constraints.



ECOSYSTEM PIPELINES

Stellar, Starknet, Solana, Samsung, and broader industry developments that can support access.



STRATEGIC OPTIONS

Three roads to 2030, with benefits, risks, partners, and a realistic timeline.

A MORE OPEN, INCLUSIVE, AND CONNECTED WORLD.

Universal smartphone access is achievable, but it will require a combination of affordable devices, expanded connectivity, strategic partnerships, and simple, secure user experiences.

THREE ROADS.
A BRIGHTER 2030.



ROAD 1 MARKET-DRIVEN EXPANSION



ROAD 2 PARTNERSHIPS & SUBSIDIES



ROAD 3 DEVICE INTEGRATION & NEW MODELS

Global Access Landscape.

Where smartphone access is expanding — and where affordability still blocks inclusion.

PEOPLE
CONNECTED.
OPPORTUNITIES
UNLOCKED.
A BRIGHTER
TOMORROW.

10F1
RESEARCH
GLOBAL INSIGHTS
REAL-WORLD IMPACT

SMARTPHONE OWNERSHIP RATE



GLOBAL SMARTPHONE ACCESS (2024)

ESTIMATED SHARE OF POPULATION
WITH A SMARTPHONE

NORTH
AMERICA
~83%

EUROPE
~78%

ASIA
~62%

LATIN
AMERICA
~67%

AFRICA
~34%

OCEANIA
~76%

01 NORTH AMERICA



High access across the U.S. and Canada, with mature infrastructure and diverse device ecosystems. Remaining gaps are concentrated in rural and indigenous communities.

- Strong network coverage
- High device affordability
- Rural and indigenous gaps remain

02 EUROPE



Broad access across most countries, driven by strong infrastructure, competitive markets, and supportive digital policies. Eastern and rural regions still face affordability and coverage challenges.

- Mature infrastructure
- Supportive policy environment
- Gaps in rural and eastern regions

03 ASIA



Rapid growth and large absolute user base, with wide variation across countries. Urban centers are well connected, while rural areas and lower-income segments face significant barriers.

- Fastest user growth
- Expanding device ecosystems
- Affordability and rural gaps persist

04 LATIN AMERICA



Steady expansion driven by mobile-first populations and increasing affordability. Gaps remain in rural areas, underserved communities, and smaller markets due to cost and connectivity constraints.

- Growing access and adoption
- Mobile-first user base
- Rural and low-income gaps remain

05 AFRICA



The largest opportunity and the widest gap. Urban areas show strong growth, but affordability, limited rural connectivity, and fragmented programs continue to constrain inclusion across many markets.

- Rapid growth in urban centers
- Young, digital-first population
- Affordability and rural connectivity are key barriers

06 OCEANIA



High access in Australia and New Zealand, with strong infrastructure and digital services. Gaps remain in remote island communities due to higher device costs and limited connectivity.

- High overall access
- Strong infrastructure
- Remote islands face higher costs and coverage gaps

COVERAGE THEMES

- 01 AFFORDABILITY PRESSURE**
Device costs, data prices, and income levels remain the biggest barriers in many markets.
- 02 RURAL NETWORK REACH**
Limited or no network coverage in rural and remote areas continues to exclude large populations.
- 03 DEVICE FINANCING**
Installment plans, subsidies, and innovative financing models are critical to expand access at scale.
- 04 DIGITAL TRUST**
User trust, privacy, and local regulatory clarity influence adoption, especially in new markets.

KEY TAKEAWAY

The widest gaps in global smartphone access are typically driven by **affordability, rural connectivity, and program fragmentation** — not just compute capability.

Expanding access requires a combination of more affordable devices, broader and more inclusive connectivity, and better-coordinated programs across governments, industry, and local partners.



195
COUNTRIES

Our research directory tracks 195 countries with verified, partial, or unverified program status, covering government initiatives, operator programs, device financing, and other smartphone access efforts.

Pixel 11

Benchmark & Practical Device Tiers

Use Pixel-class capability as a benchmark — but design for the devices people can actually obtain.

REAL-WORLD
DEVICES.
REAL PEOPLE.
BROAD ACCESS.
A MORE
INCLUSIVE
2030.

"Technology works when it includes everyone."
10F1+

01 FLAGSHIP BENCHMARK

Pixel-11-class Flagship Benchmark

Sets the capability benchmark for what's possible today and by 2030.



RAM	12–16 GB
Storage	256–512 GB
Secure Element	Titan M2 / StrongBox
Display	6.3–6.8" OLED, 120Hz+
Camera / Scan	50MP+ (high-quality camera, QR & document scanning)
Expected Uses	Full-featured wallet, payments, identity, dApps, and optional local proving.

02 SECURE MID-RANGE

Secure Mid-Range Smartphone Tier

The practical sweet spot for most users — secure, capable, and widely available.



RAM	6–8 GB
Storage	128–256 GB
Secure Element	TEE / StrongBox (widely supported)
Display	6.1–6.7" OLED / LCD, 90–120Hz
Camera / Scan	12–50MP (good camera, reliable QR scanning)
Expected Use Cases	Everyday wallet, payments, identity, mainstream apps, lightweight dApps.

03 LOW-COST ACCESS

Low-Cost Android Access Tier

Brings blockchain-based financial access to billions with affordable devices.



RAM	3–4 GB
Storage	64–128 GB
Secure Element	TEE (common on modern Android)
Display	6.0–6.6" LCD / IPS
Camera / Scan	8–13MP (sufficient for QR scanning)
Expected Use Cases	Wallet, payments, identity, QR/NFC, basic apps, lightweight dApps.

04 CONSTRAINED / ENTRY

Constrained Legacy / Entry Tier

Older or lower-spec devices still matter — design for the lowest denominator to maximize inclusion.



RAM	2–3 GB
Storage	32–64 GB
Secure Element	Software Keystore (or none)
Display	5.5–6.1" LCD
Camera / Scan	5–8MP (basic QR scanning)
Expected Use Cases	Basic wallet, payments, identity, QR access, lightweight web apps.

REALISTIC CAPABILITY MATRIX

MOST EVERYDAY WALLET, PAYMENT, IDENTITY, AND APP FUNCTIONS DO NOT REQUIRE LOCAL PROVING ON FLAGSHIP HARDWARE.

FUNCTION / CAPABILITY	01 PIXEL-11-CLASS FLAGSHIP	02 SECURE MID-RANGE	03 LOW-COST ANDROID	04 CONSTRAINED LEGACY / ENTRY
Self-custody wallet (create / use)	✓ Yes	✓ Yes	✓ Yes	✓ Yes
Payments (on-chain & off-chain)	✓ Yes	✓ Yes	✓ Yes	✓ Yes
Digital identity (verify / present)	✓ Yes	✓ Yes	✓ Yes	✓ Yes
QR / NFC (tap, scan, connect)	✓ Yes	✓ Yes	✓ Yes	✓ Yes
Lightweight dApps (consumer apps)	✓ Yes	✓ Yes	✓ Yes	⚠ Limited (simpler web apps)
Local proving (ZK, advanced crypto)	✓ Yes (recommended)	⚪ Optional (supported)	⚠ Limited (slower / constrained)	✗ No (use remote proving)

! THE LOWEST DENOMINATOR AVAILABILITY

To achieve global access, we design for the lowest practical denominator — affordable Android devices that billions of people can obtain. Advanced features such as local proving can leverage higher-end devices when available, but core wallet, payment, and identity functions must work well on widely accessible hardware.



A MORE INCLUSIVE 2030

- ✓ Core financial access works on widely available devices
- ✓ Advanced features scale up with better hardware
- ✓ No one is excluded because of device cost
- ✓ Technology adapts to people, not the other way around

Country Directory & Program Routes.

How the 195-country ledger is organized — and how to distinguish verified help from generic contact leads.

SAME GOAL.
DIFFERENT PATHS.
REAL HELP
IN MORE PLACES.

PROGRAM ROUTE TYPES

WE IDENTIFY SIX MAIN ROUTES THROUGH WHICH PEOPLE CAN ACCESS SMARTPHONES.

01



GOVERNMENT PROGRAM

National or local government initiatives that provide devices or subsidies for low-income people, students, or specific groups.

02



CARRIER FINANCING

Mobile network operators offering low-cost devices, installment plans, or subsidized smartphones tied to service plans.

03



NGO / DEVICE BANK

Nonprofits, charities, and device banks that collect, refurbish, and distribute smartphones to people in need.

04



REGULATOR / MINISTRY CONTACT

Telecom regulators or government ministries that can direct you to official programs and social support channels.

05



REFURBISHED / TRADE-IN

Certified refurbished devices, trade-in programs, or e-waste recovery initiatives that make quality used smartphones available at low cost or free.

06



COMMUNITY / EDUCATION CHANNELS

Schools, universities, libraries, community centers, and local initiatives that provide devices for learning, job seeking, and community participation.

SAMPLE COUNTRY DIRECTORY

A SELECTED EXAMPLE OF ENTRIES FROM THE 195-COUNTRY LEDGER.

COUNTRY	REGION	MAIN PROGRAM TYPE(S)	EXAMPLE ROUTE	CONTACT / WEBSITE (EXAMPLE)	STATUS
United States	North America	Carrier Financing, Community / Education	Lifeline (federal), carrier low-income plans	lifelinesupport.org	Verified
Canada	North America	Government Program, Carrier Financing	Connecting Families, carrier subsidy plans	ised-isde.gc.ca	Verified
Brazil	South America	Government Program, NGO / Device Bank	Computadores para Inclusão, NGO device donations	gov.br/mcomtecnologia.org.br	Partial
United Kingdom	Europe	Carrier Financing, Community / Education	Social tariffs, community device schemes	ofcom.org.uk/virginmedia.com	Verified
Germany	Europe	Government Program, Refurbished / Trade-in	DigitalPakt Schule, certified refurbished	bmbf.de/digitale-chancen.de	Verified
Kenya	Africa	NGO / Device Bank, Carrier Financing	NGO distributions, M-PESA device offers	kenya.go.ke/safaricom.co.ke	Partial
Nigeria	Africa	Government Program, NGO / Device Bank	National Digital Economy Initiative, NGO device programs	nitda.gov.ng/nigeriancommtech.org	Partial
India	Asia	Government Program, Carrier Financing	Digital India initiatives, low-cost device plans	meity.gov.in/jio.com	Verified
Indonesia	Asia	Government Program, Community / Education	Device support for students, community programs	kemdikbud.go.id/telkomsel.com	Partial
Australia	Oceania	Carrier Financing, Community / Education	Low-income mobile plans, community programs	acma.gov.au/telstra.com.au	Verified
Philippines	Asia	Carrier Financing, NGO / Device Bank	Student device programs, NGO distributions	dict.gov.ph/globe.com.ph	Partial
South Africa	Africa	Government Program, Carrier Financing	Social relief of distress, low-cost device offers	dtps.gov.za/vodacom.co.za	Partial

STATUS DEFINITIONS

WE CLASSIFY EACH ENTRY BASED ON OUR RESEARCH AND VERIFICATION



Verified

We have confirmed a real program, official page, or active initiative that provides access to smartphones or device support.



Partial

There is credible evidence of a relevant program or contact route, but details are limited, regional only, or require further verification.



Unverified

We found only a general contact, incomplete information, or unconfirmed reports. Not yet verified as a direct path to device access.



IMPORTANT NOTE

A regulator contact is not itself proof of a free phone offer.

Telecom regulators and government ministries can provide valuable information and direct you to official programs, but simply listing their contact details does not mean they give away free smartphones. Always confirm the specific program, eligibility criteria, and current availability through official sources.



THE FULL 195-COUNTRY DATASET

The complete country directory, including all 195 countries, additional program details, and regular updates, is available in the Appendix and the companion workbook.



Mobile Bottlenecks: RAM, LCD, Power, and Connectivity

Real access
means designing
for real devices.

The real limits on mobile crypto access are operational, not just theoretical.

P.06 + TECHNICAL SYSTEMS ANALYSIS



01 LIMITED RAM HEADROOM



Most smartphones have limited usable memory, leaving little room for large cryptographic workloads.

Many devices, especially entry-level Android phones, have 2–4 GB of RAM, with a significant portion already used by the OS and background apps. This limits the ability to run memory-intensive tasks such as zero-knowledge proving.

TYPICAL RAM AVAILABILITY (ANDROID, 2024)



02 LCD READABILITY AND SCAN QUALITY



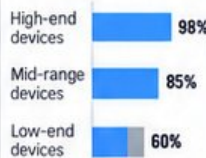
Low-end screens make it harder to read complex information and scan QR codes reliably.

Lower resolution, low brightness, and poor camera quality affect the ability to display and scan QR codes, verify addresses, and review transaction details—especially in bright outdoor environments.

SCREEN COMPARISON



SCAN SUCCESS RATE (EXAMPLE, QR CODES)



Lower resolution, motion blur, and poor lighting reduce scan reliability.

03 BATTERY AND CHARGING CONSTRAINTS



Mobile devices have limited battery capacity, and charging access can be unreliable.

Crypto apps that perform heavy computation, continuous synchronization, or frequent network requests drain battery quickly. In many emerging markets, users also face limited access to reliable and affordable charging infrastructure.

TYPICAL BATTERY IMPACT (EXAMPLE)



Higher screen brightness, poor network conditions, and background sync further increase power usage.

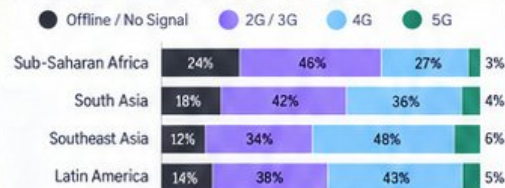
04 INTERMITTENT CONNECTIVITY



Reliable, high-speed connectivity cannot be assumed.

Many users experience intermittent 3G/4G coverage, high latency, and expensive data plans. Apps must be resilient to disconnections, support low-bandwidth operation, and handle delayed synchronization.

REAL-WORLD CONNECTIVITY (SELECT REGIONS)



Share of time on each network type (median, 2023).
Source: GSMA Mobile Connectivity Index (2024)

05 STORAGE AND OS PRESSURE



Limited storage and a crowded OS environment constrain what apps can do.

Entry-level devices may have only 32–64 GB of storage, with a large portion used by the OS, pre-installed apps, media, and offline content. This limits the size of blockchain data, caches, and local databases that can be stored.

TYPICAL STORAGE LAYOUT (64 GB DEVICE)



WHY LOCAL PROVING IS DIFFICULT ON LOW-MEMORY DEVICES

Zero-knowledge proving requires large memory buffers for witness data, intermediate states, and cryptographic operations. This often exceeds the available RAM on low-end devices, causing slow performance or failure.



Local Proving
(on low-end device)

App (UI)	~200 MB
Proving framework	~500 MB
Witness data	~1–3 GB
Intermediate buffers	~1–4 GB
Total (typical)	> 2–6 GB



Often exceeds available RAM on entry-level devices (2–3 GB).



Light-Client Usage
(on low-end device)

App (UI)	~100 MB
Light client	~50–200 MB
Blockchain headers	~10–100 MB
Total (typical)	< 200 MB



Fits within typical RAM headroom, even on entry-level devices.

WHAT WORKS ON CONSTRAINED DEVICES



Light-Client Wallets

Verify balances and transactions using compact data (e.g., headers) with low memory and bandwidth.



Simplified UX & Data

Optimized data sync, smaller blockchain data footprints, and offline-friendly designs.



QR-Based Transactions

Send and receive using QR codes with low data usage and minimal manual input.



Intermittent Network Support

Store-and-forward transactions, automatic retries, and low-bandwidth modes.



Efficient App Design

Small app size, modular features, and careful memory management.



Local Proving

Full zero-knowledge proving is memory and CPU intensive, often exceeding available RAM and battery limits.



Full Node Operation

Storing and validating the full blockchain requires significant storage, bandwidth, and continuous uptime.



Large On-Device Datasets

Keeping extensive transaction history or large state data is constrained by limited storage.



Advanced Cryptography

Complex multi-party protocols and heavy cryptographic workloads require more CPU, memory, and power.



Real-Time High-Frequency Use

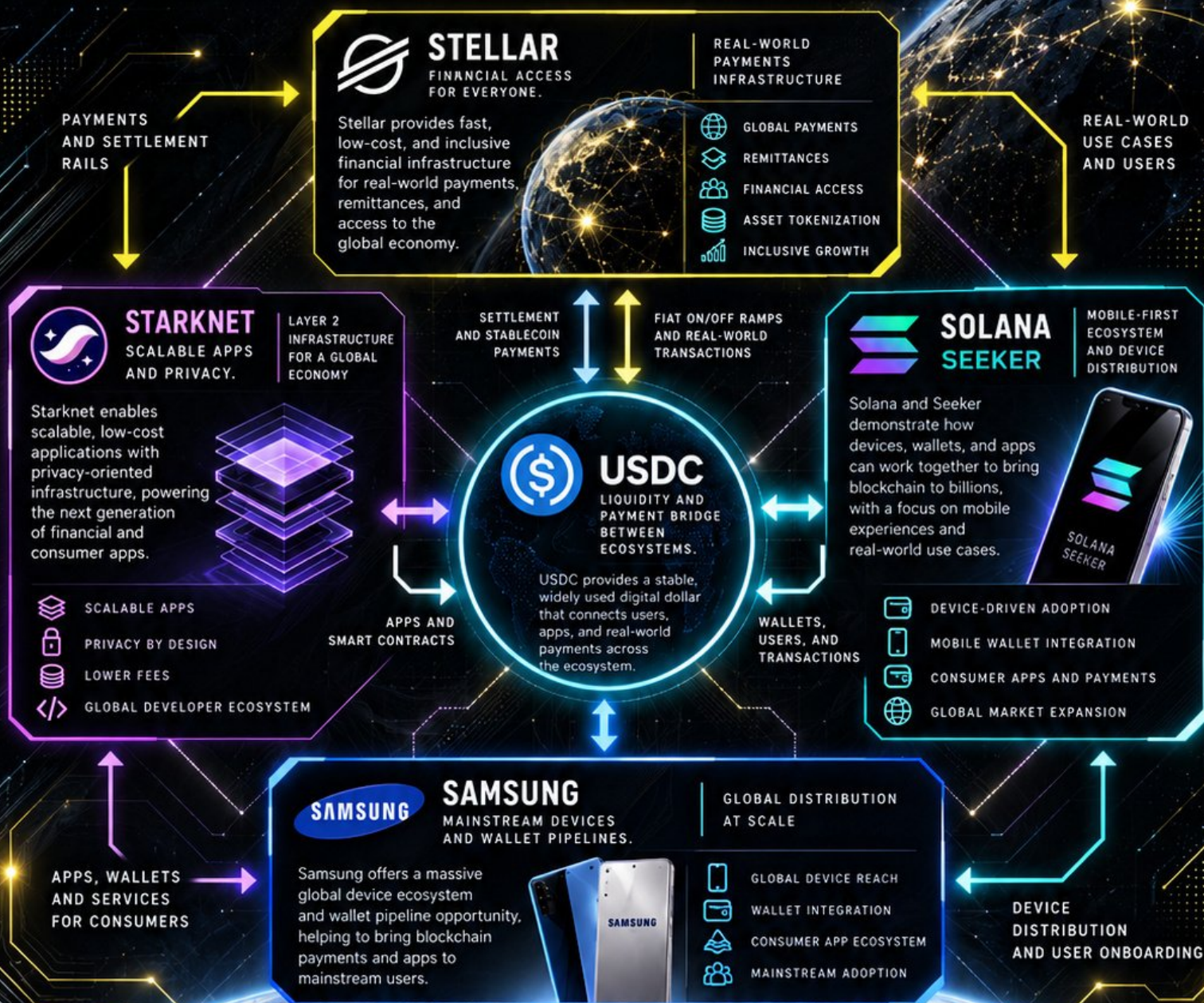
Applications that require continuous high-speed connectivity and low-latency data may not perform reliably.



Ecosystem Pipelines: Stellar, Starknet, Solana, Samsung, and USDC.

Access scales fastest when infrastructure, wallets, and devices align.

FIVE
ECOSYSTEMS.
A MORE OPEN,
INCLUSIVE,
AND CONNECTED
FINANCIAL
FUTURE.



ECOSYSTEM IMPACT

CONNECTED INFRASTRUCTURE. EXPANDED ACCESS. BRIGHTER TOMORROWS.



BILLIONS OF PEOPLE

Greater access to financial services, payments, and digital opportunities.



MORE USEFUL APPS

Real-world payments, consumer apps, and new business models across the ecosystem.



STRONGER ECONOMIES

More participation, more innovation, and greater global economic inclusion.



A MORE OPEN AND CONNECTED WORLD

Interoperable infrastructure, devices, and stablecoin rails working together for people everywhere.



These are strategic opportunity lanes based on current developments and ecosystem momentum. They are not all guaranteed integrations, and the timing and nature of collaboration may vary.

DIFFERENT PATHS.
A SHARED DESTINATION.

Quantum Preparedness & the Starknet L1 Thesis

Why long-term security and infrastructure independence matter to a 2030 access strategy.

RESILIENT
INFRASTRUCTURE
FOR A MORE OPEN,
INCLUSIVE, AND
CONNECTED
WORLD.

STARKNET
INDEPENDENT
INFRASTRUCTURE
GREATER ACCESS
BRIGHTER
TOMORROWS.

A MORE
SECURE,
OPEN FUTURE.



PEOPLE
MARKETS
INFRASTRUCTURE
OPPORTUNITY

01 POST-QUANTUM RISK HORIZON



REAL RISK. REAL TIMELINE.

Advances in quantum computing could weaken today's widely used cryptography, including elliptic curve-based systems, within the next 10–20 years. Preparing now helps ensure a more resilient and inclusive global financial system through 2030 and beyond.

02 WHAT STARKs CONTRIBUTE



BUILT FOR A MORE SECURE FUTURE.

STARKs (Scalable Transparent ARGuments of Knowledge) use hash-based cryptography, which is considered quantum-resistant. They enable efficient, transparent proofs for large-scale computing without relying on elliptic curve cryptography.

03 WHY SETTLEMENT DEPENDENCIES MATTER



SECURITY AND SOVEREIGNTY.

Relying on external settlement layers can introduce long-term risks, including shared security assumptions, upgrade dependencies, and limited control over critical infrastructure. Greater independence can strengthen resilience, reduce systemic risk, and support uninterrupted access.

04 WHY AN INDEPENDENT L1 PATH IS BEING DISCUSSED



LONG-TERM RESILIENCE.
GREATER OPTIONALITY.

An independent Starknet L1 is being explored to combine STARK security with full control over consensus, settlement, and protocol evolution. This could enable a more sovereign, future-proof infrastructure optimized for global, inclusive access—aligned with the 2030 vision of a more open economy.

COMPARISON: FROM TODAY TO A MORE INDEPENDENT TOMORROW

CURRENT ROLLUP DEPENDENCE SECURITY THROUGH EXTERNAL SETTLEMENT



STARKNET
L2 (Rollup)

Ethereum
Settlement Layer

- Relies on external L1 for final settlement
- Shares security and upgrade dependencies
- Limited control over base layer governance
- Proven scalability and strong ecosystem today

INDEPENDENT L1 AMBITION STARK-POWERED SOVEREIGN INFRASTRUCTURE



- Native STARK-based consensus and settlement
- Quantum-resistant by design
- Full control over protocol upgrades and governance
- Optimized for global scale and real-world use cases
- Greater resilience and long-term optionality

PRACTICAL USER IMPACT A MORE SECURE AND INCLUSIVE EXPERIENCE



- CONTINUED ACCESS**
More resilient infrastructure for long-term usability.
- LOWER SYSTEMIC RISK**
Less dependence on third-party layers.
- GREATER INNOVATION**
More flexibility to evolve and meet real-world needs.
- A MORE INCLUSIVE GLOBAL ECONOMY**
Stable, open access for people and markets everywhere.



PROPOSAL / THESIS UNDER CONSIDERATION, NOT A COMPLETED GOVERNANCE OUTCOME.

An independent Starknet L1 is a thesis currently being researched and discussed within the community. It is not a finalized proposal or governance decision.



STARKNET · SCALABLE · SECURE · INCLUSIVE · FOR A BRIGHTER TOMORROW.

“Long-term thinking today
builds a more open tomorrow.”

10F1
RESEARCH

Three Roads to 2030.

A decision framework for scaling secure phone access.

DIFFERENT PATHS.
A SHARED DESTINATION.

MORE PEOPLE.
STRONGER PEOPLE.
A MORE OPEN FINANCIAL FUTURE.

Technology expands human potential.

WIDER ACCESS.
STRONGER PEOPLE.
A MORE OPEN FINANCIAL FUTURE.

01 STAY ETHEREUM L2

Software-First Access

Scale through existing Ethereum L2 ecosystems and open standards.

ARCHITECTURE

Build on Ethereum L2 networks (e.g., Starknet) with account abstraction, open standards, and interoperable wallets.

ACCESS MODEL

Software-first. Multi-device wallets, no hardware requirement. Global reach via app distribution, web, and carrier partnerships.

CAPITAL INTENSITY

Lower. Primarily software, ecosystem development, and go-to-market.

HARDWARE IMPLICATIONS

Minimal. Works on existing Android and iOS devices. Flexible and inclusive.

UPSIDE

Fastest path to scale. Leverages Ethereum security, liquidity, and global developer ecosystem. Broadest reach.

RISK

Dependence on Ethereum roadmap, L2 economics, and ecosystem governance. Fragmented user experience across wallets and bridges.

02 SOVEREIGN L1

Sovereign L1 + Hardware Treasury

A purpose-built chain with an ecosystem-owned hardware treasury.

ARCHITECTURE

Sovereign Layer 1 blockchain optimized for global payments, identity, and device integration. Own governance and economic model.

ACCESS MODEL

Native wallet, native apps, and direct device integration. Designed for global scale and real-world utility.

CAPITAL INTENSITY

Higher. Requires chain development, validator set, ecosystem incentives, and hardware treasury.

HARDWARE IMPLICATIONS

Strategic. Ecosystem-owned hardware treasury to subsidize devices and ensure long-term, inclusive access.

UPSIDE

Full control of economics, governance, and integration. Deep alignment across chain, devices, and applications. Potential for large-scale emerging market impact.

RISK

High execution complexity. Requires significant capital, talent, and long-term commitment. Competition from established L1 ecosystems.

03 SEEKER + SAMSUNG + OEM

Partnership Strategy

Scale through Seeker, Samsung, and broader OEM partnerships.

ARCHITECTURE

Integrate wallet, identity, and payments into Seeker devices, Samsung ecosystem, and other OEM partners. Multi-chain support (Stellar, Starknet, Solana, etc.).

ACCESS MODEL

Hardware-led and hybrid. Pre-installed apps, secure wallet enclaves, and seamless onboarding for mainstream users.

CAPITAL INTENSITY

Medium. Partnership development, device integration, and go-to-market costs, with shared investment from OEMs and ecosystem partners.

HARDWARE IMPLICATIONS

Core to the strategy. Leverage Seeker and Samsung devices, with expansion to additional OEMs and carrier partners.

UPSIDE

Massive distribution potential. Trusted brands, global reach, and integrated user experience. Strong fit for emerging markets and real-world use cases.

RISK

Dependence on OEM and carrier partnership execution. Longer sales cycles and complex negotiations. Need to maintain openness and avoid walled-garden limitations.

RECOMMENDATION
Leading practical path: combine Road 1 + Road 3, while evaluating Road 2 independently.

- Use Road 1 to scale access quickly and globally.
- Use Road 3 to reach mainstream users through devices.
- Continue to evaluate Road 2 as a strategic long-term option.

PHASED ROADMAP TO 2030

FROM ACCESS TO IMPACT. TOGETHER.



“Wider access. Stronger people. A more open financial future.”

GLOBAL DEVICE ACCESS LEDGER

Full 195-country smartphone access ledger for 2030 research.

Programs • referral routes • device-access channels • verification status • contact paths.

REAL DATA.
REAL PEOPLE.
WIDER ACCESS.
BRIGHTER
TOMORROWS.



INDEPENDENT
RESEARCH
EXPLORING
A MORE OPEN,
INCLUSIVE, AND
CONNECTED
GLOBAL ECONOMY.



195
Countries

A COMPLETE GLOBAL
LEDGER COVERING
ALL 195 COUNTRIES.



6
Continents

REGIONAL INSIGHTS
AND DIVERSE PATHS
TO DEVICE ACCESS.



Program
Routes

GOVERNMENT PROGRAMS,
CARRIER PLANS, NGOs
AND MORE.



Verification
Notes

STATUS CLASSIFICATION,
SOURCE LINKS, AND
CONTACT PATHS.



A MORE OPEN,
INCLUSIVE,
CONNECTED
GLOBAL ECONOMY

EXECUTIVE SUMMARY

What the 195-country ledger actually proves.

We analyzed government programs, carrier plans, NGO initiatives and other public sources across 195 countries to map real and potential pathways to smartphone access. The results show meaningful progress and a clear path forward — but also major gaps that must be addressed.



195
countries
covered

The ledger includes all 195 countries, providing a truly global view of smartphone access programs and related pathways.



195
named national
leads

We identified 195 named national leads (e.g., ministry contacts, regulators, or program owners) to enable direct engagement in every country.



66
direct website
leads

66 countries have direct website leads for current smartphone programs, with verifiable information on eligibility, process and contact paths.



127
historical website
candidates

127 countries have historical website candidates that need revalidation to confirm whether the programs are still active, updated or replaced.



**Main
bottleneck**
Affordability and
connectivity, not
flagship compute.

The biggest barriers to smartphone access are device affordability and reliable connectivity (e.g., mobile data, coverage, last-mile infrastructure), not high-end compute.



**Not every
country**
has a verified free
smartphone program.

Many countries have no confirmed free device access program, even if they have digital inclusion, subsidy or connectivity initiatives.



**The ledger
distinguishes**
real offer, financing,
service subsidy,
and referral route.

We classify each pathway to avoid confusion between a true free device offer, financing (e.g., installments), a service subsidy (e.g., data plans), and a referral route (e.g., NGO or partner program).



3.4B
people are still
not using mobile
internet.

An estimated 3.4 billion people worldwide remain offline, representing a major and urgent opportunity to expand device access and connectivity.



Goal: translate contact leads into real device access for onchain utility.

Turn the 195 country contacts and program leads into real smartphone access, so more people can get online and participate in the onchain economy via Starknet and Stellar.

Why this matters for Starknet and Stellar

Expanding smartphone access helps grow a more open, inclusive global economy by bringing more people into the onchain world.



Device access

More people online with capable devices.



Identity

Enables verifiable onchain identity and participation.



Connectivity

Bridges people to digital services and opportunities.



Wallets

Lets more people create and use self-custodial wallets.



Payments

Expands access to fast, low-cost global payments.



Savings

Helps people save and build financial resilience.



Education

Opens access to learning, skills and digital economy opportunities.



Reality check

A regulator contact is not the same thing as a free phone offer.

A ministry, regulator or government contact may be a valuable entry point, but it does not automatically mean there is a free smartphone program. Each lead must be validated to confirm what is actually offered, who is eligible, and whether the program is active.

HOW TO READ THE LEDGER

Status, contact paths, and evidence tiers.



INDEPENDENT
RESEARCH
EXPLORING
A MORE OPEN,
INCLUSIVE, AND
CONNECTED
GLOBAL ECONOMY.

The Global Device Access Ledger organizes real-world information to help you quickly understand what exists, how to access it, and what it means. Each country row shows the national lead, the contact route, the access path, the status, and key notes.

1 SAMPLE LEDGER ROW

EXAMPLE ONLY — NOT A REAL PROGRAM

Country	National lead	Contact route	Access path	Status	Notes
Kenya	Ministry of Information, Communications and the Digital Economy (MICDE)	Government portal info@micde.go.ke +254 20 225 3000	National program (school devices) + possible carrier financing partner	Verified	Public program for student devices confirmed. Additional device-access options via carrier partners under review.

2 STATUS LEGEND

Each country in the ledger is assigned one of four status levels based on our research and verification.



Verified

Real program or concrete offer path confirmed.



Partial

Organization or program confirmed, but inventory or device specifics unconfirmed.



Referral only

Real regulator or ministry contact, but no actual phone offer verified.



No verified free Pixel-class offer

No qualifying national offer confirmed.

3 THE ACCESS PROCESS

From a person to real-world use, the pathway typically looks like this.



4 ACCESS ROUTE TYPES

We categorize device-access paths into five main types across the ledger.

	National program	Government-led device distribution (e.g., education, social programs).
	Carrier financing	Devices through mobile network operators (installments or bundled).
	NGO/device bank	Non-profits, device donation, or refurbished device programs.
	Service subsidy	Subsidized connectivity or digital inclusion programs (may include devices).
	Regulator referral	Official contact point for further guidance (not a direct supplier).

5 WHAT NOT TO ASSUME

To keep the research accurate and useful, we do not make the following assumptions.



Do not treat regulator pages as suppliers.

A ministry or regulator may provide guidance, but it is not a device supplier.



Do not assume availability means affordability.

A device may be available in a country but still unaffordable for many people.



Do not assume service subsidies include smartphones.

Some programs subsidize connectivity only, not the cost of a device.

THE GLOBAL PICTURE

Access gaps, hardware constraints, and three roads to 2030.



A MORE OPEN,
INCLUSIVE, AND
CONNECTED
GLOBAL ECONOMY.

REAL DATA.
REAL PEOPLE.
WIDER ACCESS.
BRIGHTER
TOMORROWS.



NORTH AMERICA

High access.
Widespread smartphone and internet access, strong developer and institutional activity.



EUROPE

High institutional coverage.
Strong smartphone penetration and supportive policy environments.



ASIA

Enormous scale and diversity.
World's largest user base, with wide variation in income, device access, and regulatory environments.



SOUTH AMERICA

Mixed access.
Growing smartphone adoption, but uneven connectivity and affordability across countries.



AFRICA

Largest affordability gap.
Rapid mobile adoption but constrained by device costs, data costs, and limited infrastructure in many regions.



OCEANIA

Small but fragmented.
High access in core markets, but scattered populations and higher costs across island nations.

WHAT BLOCKS ACCESS

KEY CONSTRAINTS LIMITING GLOBAL DEVICE ACCESS AND ONCHAIN PARTICIPATION.



Handset affordability

Upfront device costs remain out of reach for billions.



Mobile data cost

Ongoing data costs are high in many markets.



Limited RAM / storage

Low-end LCD Android phones have constrained memory and storage, limiting app performance and user experience.



Weak financing

Limited access to credit and device financing programs in emerging markets.



Incomplete program visibility

Lack of clear, comprehensive visibility into government, NGO, carrier, and OEM programs for device access.

THREE ROADS TO 2030

DIFFERENT STRATEGIES. A SHARED GOAL: A MORE OPEN, INCLUSIVE, AND CONNECTED GLOBAL ECONOMY.

1

STAY ETH L2

LEVERAGE TODAY. SCALE ACCESS. KEEP SECURITY.

- Leverage existing devices
- Focus on lightweight wallets
- Keep settlement security

2

GO SOVEREIGN L1 + HARDWARE TREASURY

INDEPENDENT INFRASTRUCTURE FOR A BROADER FUTURE.

- Independent stack
- Post-quantum path
- Subsidize devices or refurb fleets

3

PARTNER DISTRIBUTION

MEET USERS WHERE THEY ARE. SCALE THROUGH PARTNERS.

- Solana Seeker pipelines
- Samsung distribution
- USDC / payment rails
- OEM and carrier inroads



Best near-term path: road 1 + road 3,
with road 2 evaluated independently.

FLEXIBLE, EVIDENCE-DRIVEN EXECUTION
CAN UNLOCK WIDER ACCESS, REGARDLESS OF PATH,
BY LOWERING DEVICE BARRIERS AND EXPANDING DISTRIBUTION.

COUNTRY LEDGER —

NORTH AMERICA & SOUTH AMERICA

National leads, contact routes, and current verification status.



= Verified

Confirmed national lead
with a free Pixel-class offer.



= Partial

Some information confirmed,
full free offer not verified.



= Referral only

Lead identified, referral required
(e.g., to operator or partner).



**= No verified free
Pixel-class offer**

No confirmed national program
offering a free Pixel-class device.

NORTH AMERICA

COUNTRY	NATIONAL LEAD	CONTACT ROUTE	STATUS
Antigua and Barbuda	Ministry of ICT, Utilities and Energy	ministry lead	R
Bahamas	Utilities Regulation and Competition Authority (URCA)	national regulator	R
Barbados	Ministry of Innovation, Industry, Science and Technology	ministry lead	R
Belize	Public Utilities Commission	regulator	R
Canada	CRTC	direct official regulator	R
Costa Rica	SUTEL	regulator	R
Cuba	Ministry of Communications	ministry	R
Dominica	National Telecommunications Regulatory Commission	regulator	R
Dominican Republic	INDOTEL	direct official regulator	R
El Salvador	SIGET / Superintendencia General de Telecomunicaciones	regulator	R
Grenada	NTRC	regulator	R
Guatemala	Superintendencia de Telecomunicaciones	regulator	R
Haiti	CONATEL	regulator	R
Honduras	CONATEL	regulator	R
Jamaica	Spectrum Management Authority / OUR	regulator	R
Mexico	Agency for Digital Transformation and Telecommunications	government lead	R
Nicaragua	TELCOR	regulator	R
Panama	Panama telecom lead	regulator / state authority	R
Saint Kitts and Nevis	NTRC	regulator	R
Saint Lucia	NTRC	regulator	R
Saint Vincent and the Grenadines	NTRC	regulator	R
Trinidad and Tobago	TATT	regulator	R
United States	USAC Lifeline / FCC	service-benefit lead	V

SOUTH AMERICA

COUNTRY	NATIONAL LEAD	CONTACT ROUTE	STATUS
Argentina	INAES / national ICT lead	government lead	R
Bolivia	Ministry of Public Works, Services and Housing	government lead	R
Brazil	ANATEL	regulator	R
Chile	SUBTEL	regulator	R
Colombia	CRC / MinTIC	national regulator	N
Ecuador	ARCOTEL	regulator	R
Guyana	Public Utilities Commission / Telecoms Agency	national lead	R
Paraguay	CONATEL	regulator	R
Peru	Ministry of Transport and Communications / OSIPTEL	government plus regulator	R
Suriname	Telecommunications Authority Suriname	regulator	R
Uruguay	URSEC	regulator	R
Venezuela	CONATEL	regulator	R

COUNTRY LEDGER — EUROPE

National leads, contact routes, and current verification status.



VERIFIED
Contacted and details confirmed.



PENDING
Contacted, awaiting response.



RESEARCH
Contact route identified, not yet verified.



NOT AVAILABLE
No clear contact route at this time.

#	COUNTRY	NATIONAL LEAD	CONTACT ROUTE	STATUS
1	Albania	AKEP	regulator	R
3	Andorra	Secretary of Digital Transformation and Andorra Telecom	ministry and state operator	R
3	Austria	RTR / Telecom Authority	regulator	R
4	Belarus	BELTELECOM / Ministry of Communications	national telecom lead	R
5	Belgium	BIPT	regulator	R
6	Bosnia and Herzegovina	CRA	regulator	R
7	Bulgaria	CRC	regulator	R
8	Croatia	HAKOM	regulator	R
9	Czechia	CTU	regulator	R
10	Denmark	Digital Business / telecom authority	regulator	R
11	Estonia	TTJA / ETRA	regulator	R
12	Finland	TRAFICOM	regulator	R
13	France	Emmaus Connect / ARCEP	NGO plus regulator	P
14	Germany	Bundesnetzagentur	regulator	R
15	Greece	EETT	regulator	R
16	Holy See	Governatorato / Vatican telecom lead	state lead	R
17	Hungary	NMHH	regulator	R
18	Iceland	ECOI / PFS	regulator	R
19	Ireland	ComReg	regulator	R
20	Italy	AGCOM	regulator	R
21	Latvia	SPRK / Electronic Communications Office	regulator	R
22	Liechtenstein	Office for Communications	regulator	R
23	Lithuania	RRT	regulator	R
24	Luxembourg	ILR / Ministère d'Etat	regulator	R
25	Malta	MCA	regulator	R
26	Moldova	ANRCETI	regulator	R
27	Monaco	Monaco telecom/state lead	national lead	R
28	Montenegro	electronic communications and postal services agency	regulator	R
29	Netherlands	ACM	regulator	R
30	North Macedonia	Agency for Electronic Communications	regulator	R
31	Norway	Norwegian Communications Authority	regulator	R
32	Poland	UKE	regulator	R
33	Portugal	ANACOM	regulator	R
34	Romania	ANCOM / digital economy lead	regulator	R
35	Russia	national telecom authority	state lead	R
36	San Marino	Ministry of Industry and Telecom	ministry lead	R
37	Serbia	Ministry of Information and Telecommunications	ministry lead	R
38	Slovakia	Regulatory Authority for Electronic Communications	regulator	R
39	Slovenia	Ministry for Digital Transformation / AKOS	ministry plus regulator	R
40	Spain	CNMC / SETID	regulator	R
41	Sweden	PTS	regulator	R
42	Switzerland	OFCOM	regulator	R
43	Ukraine	NCEC	regulator	R
44	United Kingdom	Good Things Foundation / Ofcom	NGO plus regulator	P

COUNTRY LEDGER — AFRICA A-L

National leads, contact routes, and current verification status.

V VERIFIED Contact confirmed and details validated.	P IN PROGRESS Initial contact made or in active outreach.	R RESEARCH Information identified and under verification.	N NOT STARTED No outreach yet.
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🌐	#	COUNTRY	👤 NATIONAL LEAD	🔗 CONTACT ROUTE	📊 STATUS
01		Algeria	Ministry of Post and Telecom / ARPCE	ministry and regulator	R
02		Angola	Ministry / INACOM	ministry and regulator	R
03		Benin	Ministry of Digitalization / ARCEP	ministry and regulator	R
04		Botswana	BOCRA	regulator	R
05		Burkina Faso	ARCEP / ARTEL	regulator	R
06		Burundi	Ministry of Digital Economy / ARCT	ministry and regulator	R
07		Cabo Verde	ARME	regulator	R
08		Cameroon	Ministry of Posts and Telecom	ministry lead	R
09		Central African Republic	Ministry of Digital Economy / ART	ministry and regulator	R
10		Chad	Ministry of Telecom and Digital Economy	ministry lead	R
11		Comoros	ANRTIC	regulator	R
12		Congo (Republic of the)	ARPCE	regulator	R
13		Democratic Republic of the Congo	Ministry of Posts, Telecom and New ICT	ministry lead	R
14		Côte d'Ivoire	ARTCI / Ministry of Digital Transition	regulator and ministry	R
15		Djibouti	Ministry of Communication and Telecom	ministry lead	R
16		Egypt	NTRA	regulator	R
17		Equatorial Guinea	ORTEL	regulator	R
18		Eritrea	Ministry of Transport and Communications	ministry lead	R
19		Eswatini	Eswatini Communications Commission	regulator	R
20		Ethiopia	Ethiopian Communications Authority	regulator	R
21		Gabon	ARCEP / ARTEL	regulator	R
22		Gambia	PURA	regulator	R
23		Ghana	M-KOPA / NCA	financing plus regulator	V
24		Guinea	Ministry of Communication, Digital Economy and Innovation	ministry lead	R
25		Guinea-Bissau	ARN TIC	regulator	R
26		Kenya	Safaricom Lipa Mdogo Mdogo / Communications Authority	financing plus regulator	P
27		Lesotho	LCA	regulator	R

COUNTRY LEDGER — AFRICA M-Z

National leads, contact routes, and current verification status.



 COUNTRY	 NATIONAL LEAD	 CONTACT ROUTE	 STATUS
 Liberia	LTA	regulator	R
 Libya	General Authority of Communication and Informatics	state lead	R
 Madagascar	ARTEC	regulator	R
 Malawi	MACRA	regulator	R
 Mali	AMRTP	regulator	R
 Mauritania	Autorité de Régulation	regulator	R
 Mauritius	ICTA	regulator	R
 Morocco	ANRT	regulator	R
 Mozambique	communications authority / INCM	regulator	R
 Namibia	CRAN	regulator	R
 Niger	Ministry of Communication and New ICT	ministry lead	R
 Nigeria	M-KOPA / NCC	financing plus regulator	V
 Rwanda	RURA	regulator	R
 São Tomé and Príncipe	Ministry of Public Works and Infrastructure	ministry lead	R
 Senegal	ARTP	regulator	R
 Seychelles	SCRA	regulator	R
 Sierra Leone	National Communications Authority	regulator	R
 Somalia	National Communications Authority	regulator	R
 South Africa	M-KOPA / ICASA	financing plus regulator	V
 South Sudan	National Communications Authority	regulator	R
 Sudan	telecom regulator	regulator	R
 Tanzania	TCRA	regulator	R
 Togo	ARCEP	regulator	R
 Tunisia	Ministry of Communication Technologies	ministry lead	R
 Uganda	M-KOPA / UCC	financing plus regulator	V
 Zambia	ZICTA	regulator	R
 Zimbabwe	POTRAZ	regulator	R



VERIFIED

Contact confirmed, details validated, engagement active or recent.



PENDING

Initial contact made, awaiting response or further validation.



RESEARCH

Lead identified, details unconfirmed, further research required.



NOT IDENTIFIED

No clear national lead identified yet.

COUNTRY LEDGER — ASIA A-M

National leads, contact routes, and current verification status.



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V Verified Contact confirmed and validated.	P Pending Outreach in progress or awaiting response.	R Research Contact details identified, verification in progress.	N Not Available No reliable contact information yet identified.
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#	COUNTRY	NATIONAL LEAD	CONTACT ROUTE	STATUS
01	Afghanistan	ATRA	regulator	R
02	Armenia	Republican Centre of Telecommunications	national lead	R
03	Azerbaijan	Ministry of Digital Development and Transport	ministry lead	R
04	Bahrain	Ministry of Transportation and Telecommunications / TRA	ministry and regulator	R
05	Bangladesh	BTRC	regulator	R
06	Bhutan	BICMA	regulator	R
07	Brunei	AITI	regulator	R
08	Cambodia	Ministry of Posts and Telecommunications	ministry lead	R
09	China	MIIT	ministry lead	R
10	Cyprus	Department of Electronic Communications	regulator	R
11	Georgia	GNCC	regulator	R
12	India	Department of Telecommunications / TRAI	government plus regulator	N
13	Indonesia	Ministry of Communications and Digital Affairs	ministry lead	R
14	Iran	Ministry of ICT	ministry lead	R
15	Iraq	Communications and Media Commission	regulator	R
16	Israel	Ministry of Communications	ministry lead	R
17	Japan	Ministry of Internal Affairs and Communications	ministry lead	R
18	Jordan	TRC	regulator	R
19	Kazakhstan	Ministry of AI and Digital Development	ministry lead	R
20	Kuwait	CITRA	regulator	R
21	Kyrgyzstan	Ministry of Digital Development	ministry lead	R
22	Laos	Lao Telecom / telecom ministry	telecom lead	R
23	Lebanon	Ministry of Telecommunications	ministry lead	R
24	Malaysia	MCMC	regulator	R
25	Maldives	Communications Authority of Maldives	regulator	R

REAL DATA.
REAL PEOPLE.
WIDER ACCESS.
BRIGHTER
TOMORROWS.

COUNTRY LEDGER – ASIA N-Z + OCEANIA

National leads, contact routes, and current verification status.

REAL DATA.
REAL PEOPLE.
WIDER ACCESS.
BRIGHTER
TOMORROWS.



ASIA

#	COUNTRY	NATIONAL LEAD	CONTACT ROUTE	STATUS
1	Mongolia	Mongolia Telecom	telecom lead	R
2	Myanmar	Posts and Telecommunications Department	ministry lead	R
3	Nepal	NTA	regulator	R
4	North Korea	Ministry of Information and Communications Technology Industry	ministry lead	R
5	Oman	ITA / telecom authority	regulator	R
6	Pakistan	Ministry of IT and Telecommunication / PTA	ministry plus regulator	R
7	Palestine	telecom regulator / TRA	regulator	R
8	Philippines	NTC	regulator	R
9	Qatar	CRA	regulator	R
10	Saudi Arabia	CST	regulator	R
11	Singapore	IMDA	regulator	R
12	South Korea	KCC	regulator	R
13	Sri Lanka	TRCSL	regulator	R
14	Syria	STPRA	regulator	R
15	Tajikistan	Tajiktelecom / national telecom	telecom lead	R
16	Thailand	NBTC	regulator	R
17	Timor-Leste	Ministry of Transport and Communications	ministry lead	R
18	Türkiye	BTK	regulator	R
19	Turkmenistan	Turkmenaragatnashyk Agency	state telecom authority	R
20	United Arab Emirates	TDRA	regulator	R
21	Uzbekistan	Ministry of Digital Technologies	ministry lead	R
22	Vietnam	VNTA	regulator	R
23	Yemen	TeleYemen	telecom lead	R



OCEANIA

#	COUNTRY	NATIONAL LEAD	CONTACT ROUTE	STATUS
1	Australia	ACMA	regulator	R
2	Fiji	Telecom Fiji / national ICT lead	telecom lead	R
3	Kiribati	CCK	regulator	R
4	Marshall Islands	National Telecommunications Authority	telecom lead	R
5	Micronesia	FSM government telecom lead	state lead	R
6	Nauru	Ministry of Telecommunications	ministry lead	R
7	New Zealand	MBIE / Commerce Commission	government plus regulator	R
8	Palau	Ministry of Public Infrastructure and Industries	ministry lead	R
9	Papua New Guinea	NICTA	regulator	R
10	Samoa	Office of the Regulator	regulator	R
11	Solomon Islands	TCSI	regulator	R
12	Tonga	MEIDECC / communications lead	ministry lead	R
13	Tuvalu	Tuvalu Telecommunications Corporation	telecom lead	R
14	Vanuatu	Chief Information Officer / government telecom lead	state lead	R

STATUS LEGEND:



Verified (confirmed)



In Progress (active)



Researching (initial)



Not Started