

Session 2: Infrastructure Development for Universal Meaningful Connectivity

16 July 2026 11:00 – 12:15 (Bangkok Time/GMT+7)



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(Moderator)



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Timor-Leste's Digital Transformation

From Connectivity to an Inclusive Digital Economy

ITU REGIONAL DEVELOPMENT FORUM

Georgina Garcia

Autoridade Nacional de Comunicações (ANC) · 2026



Recent Achievements in Digital Network Development

Five milestones reshaping connectivity in Timor-Leste



1 First International Submarine Fibre-Optic Cable

TLSSC — a direct high-capacity link from Dili to Darwin



2 Near-Universal Mobile Coverage

Approximately 96% of the population now reached



3 Nationwide 4G Broadband Expansion

4G LTE available across all 13 municipalities



4 Satellite Broadband & Market Competition

Starlink licensed to serve remote and mountainous areas



5 Digital Government & Public Sector Modernization

Infrastructure translated into services — TIMOR DiGiTAL

Historic Deployment of the First International Submarine Fibre-Optic Cable

The Timor-Leste South Submarine Cable (TLSSC) connects Dili to Darwin, Australia. In June 2024, the Government launched the installation of the country's first submarine fibre-optic cable — replacing historic reliance on satellite links that limited bandwidth, increased latency, and kept internet costs high.



Timor-Leste Submarine Cable Station



1st

international submarine cable



June 2024

installation launched



Dili → Darwin

direct high-capacity route



Near-Universal Mobile Coverage Across the Country

~96%

of the population reached by mobile networks



Coverage in all municipal capitals

Mobile services extend across every municipal capital nationwide



Liberalization driving investment

Competition among operators has expanded access and improved service availability

Expansion of 4G Broadband Nationwide

Timor-Leste has significantly expanded mobile broadband infrastructure, with 4G LTE now reaching the vast majority of populated areas.



13 / 13

municipalities with 4G LTE service
availability

What nationwide 4G enables



Online learning

Students and teachers can reach digital education platforms



E-commerce

Local businesses selling and transacting online



Digital services & mobile applications

Broader everyday use of apps, payments, and public services

Introduction of Satellite Broadband and Greater Market Competition



2024 — Starlink licensed to operate nationwide.

The National Communications Authority granted permission to offer high-speed internet services across the country.



Reaching difficult terrain

Addresses connectivity gaps in mountainous and remote areas where terrestrial infrastructure remains difficult to deploy



A more competitive market

A new class of provider adds choice alongside terrestrial operators, strengthening resilience and service options

Digital Government and Public Sector Modernization

Digital infrastructure is increasingly being translated into digital public services for citizens and businesses.



TIMOR DiGITAL
the national digital government platform



Digital payments reaching local markets



Citizen-centred services — Bringing government services closer to people through digital channels



Modernized public administration — Building the systems and platforms of an efficient digital state

Recent Partnership with ITU

Working together to strengthen Timor-Leste's regulatory and technical foundations



National Spectrum Management

Development of national spectrum management, anchored by the National Frequency Allocation Table (NFAT)
The foundation for orderly, efficient use of radio frequencies.



Technical Assistance & Capacity Building

Training and workshops delivered with ITU support, building institutional expertise within the regulator and the wider ICT sector.

These initiatives directly support evidence-based regulation and long-term sector development.

Strengthening Cooperation with the ITU

We look forward to strengthening cooperation with the ITU in the following priority areas:



Digital infrastructure & connectivity

Development of national digital infrastructure and connectivity, including satellite and LEO solutions



Regulatory & institutional frameworks

Strengthening frameworks for telecommunications and spectrum management



Cybersecurity & digital trust

Capacity building in cybersecurity and digital trust



MSME digitalization & AI

Support for MSME digital transformation and AI adoption



Digital skills & human capital

Enhancement of digital skills and human capital development



Digital government & economy

Technical assistance for digital government and digital economy readiness

Obrigada · Thank you
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Infrastructure Development for Universal Meaningful Connectivity

ITU Regional Development Forum for APAC

16th July 2026

Mahesh Uttamchandani

*Regional Practice Director for Digital & AI
East Asia & Pacific and South Asia*

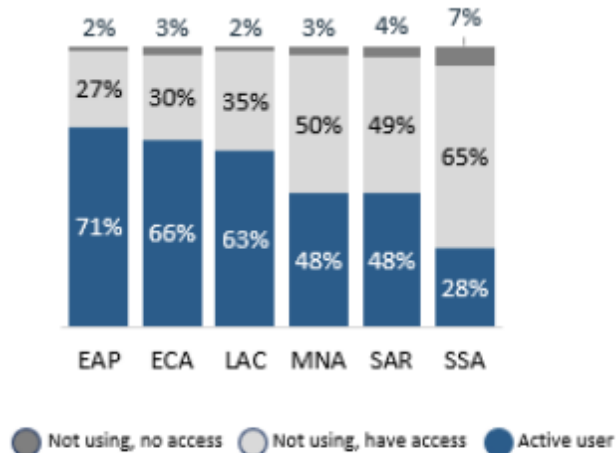


Meaningful Connectivity

requires broadband coverage, affordable devices and data package, access to Digital Public Infra, and access to compute and AI capabilities

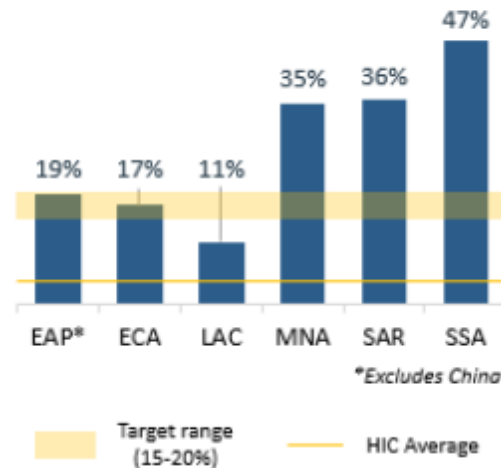
Over **2.2 billion people** in LICs and MICs do not use the internet, and 228 million are without broadband coverage

Regional Breakdown of the Connectivity Status (2024)
(percent of people in LICs/MICs)



Entry-level devices are unaffordable for **2.9 billion people**

Average Entry-Level Smartphone Price for LICs/MICs by Region (2022)
(percent of average monthly income)



2.8 billion people do not have access to official digital IDs

800m

Lack any form of official identification

30%

Live in countries without access to digital gov. services

Access to compute and AI is increasingly fundamental. But access and adoption are concentrated in advanced economies

13.8 GW

data-center capacity in EAP and SAR today — vs. 43.4 GW in the Americas

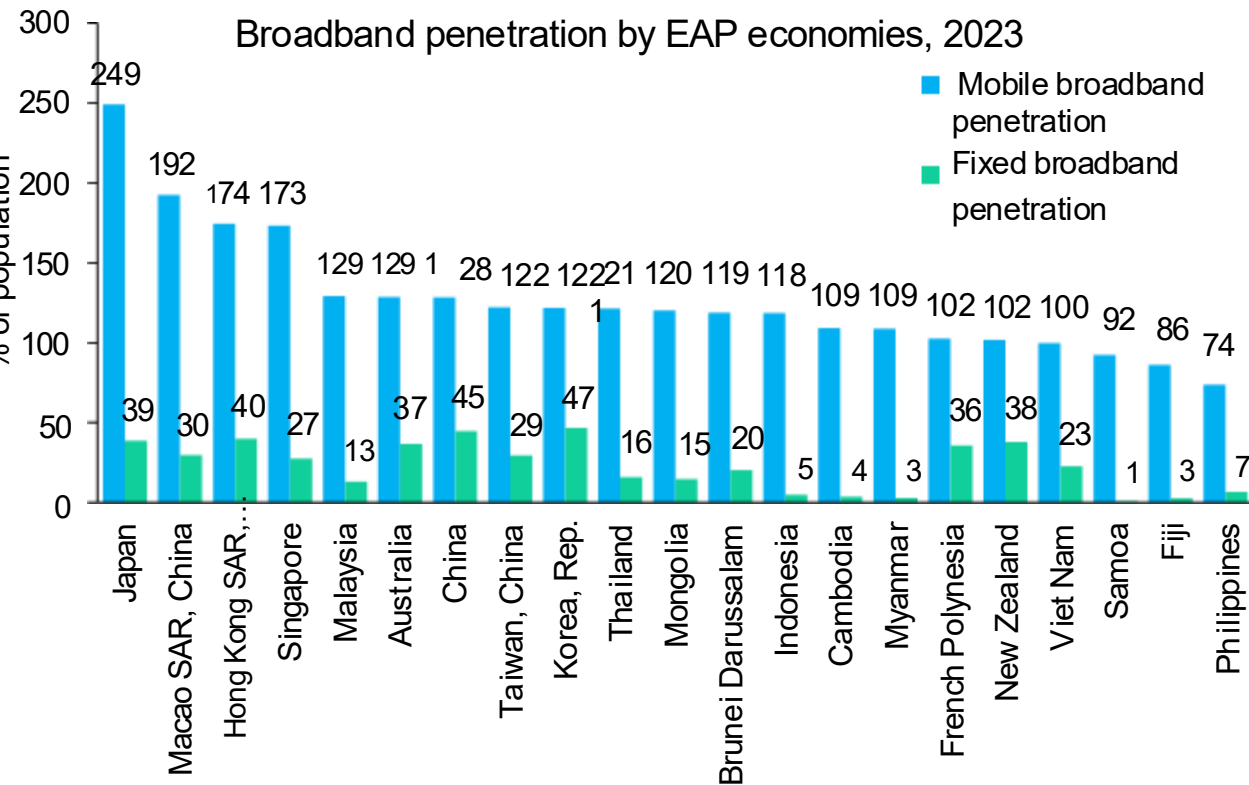
21%

of GenAI traffic is from EAP and SAR (excluding high income countries), compared to 57% from high-income countries

Internet Access & Coverage

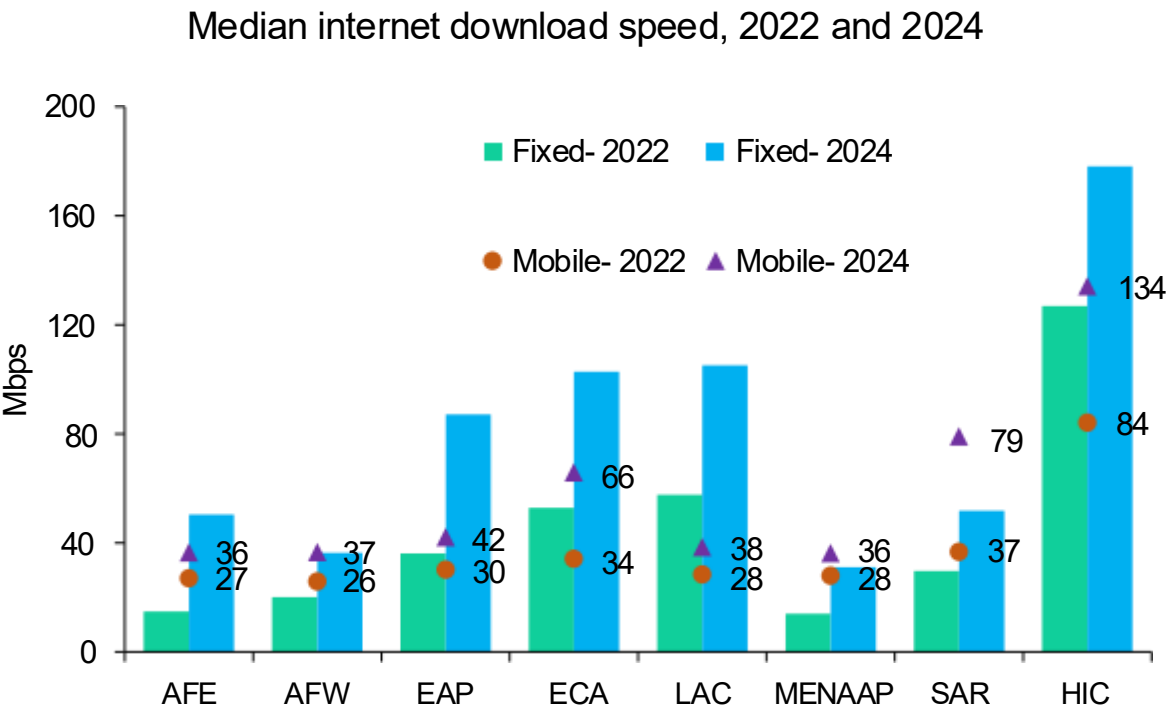
Coverage is expanding but low quality and usage still limit digital inclusion and performance.

Mobile broadband is nearly ubiquitous across EAP, except in small island states, while fixed broadband shows major gaps and variation



Source: ITU.
Note: Broadband penetration, measured as number of subscriptions per 100 people, may exceed 100 due to multiple SIM cards or phones per person and temporary subscriptions.

EAP and SAR still lag significantly behind high income countries on digital connectivity quality despite the recent progress

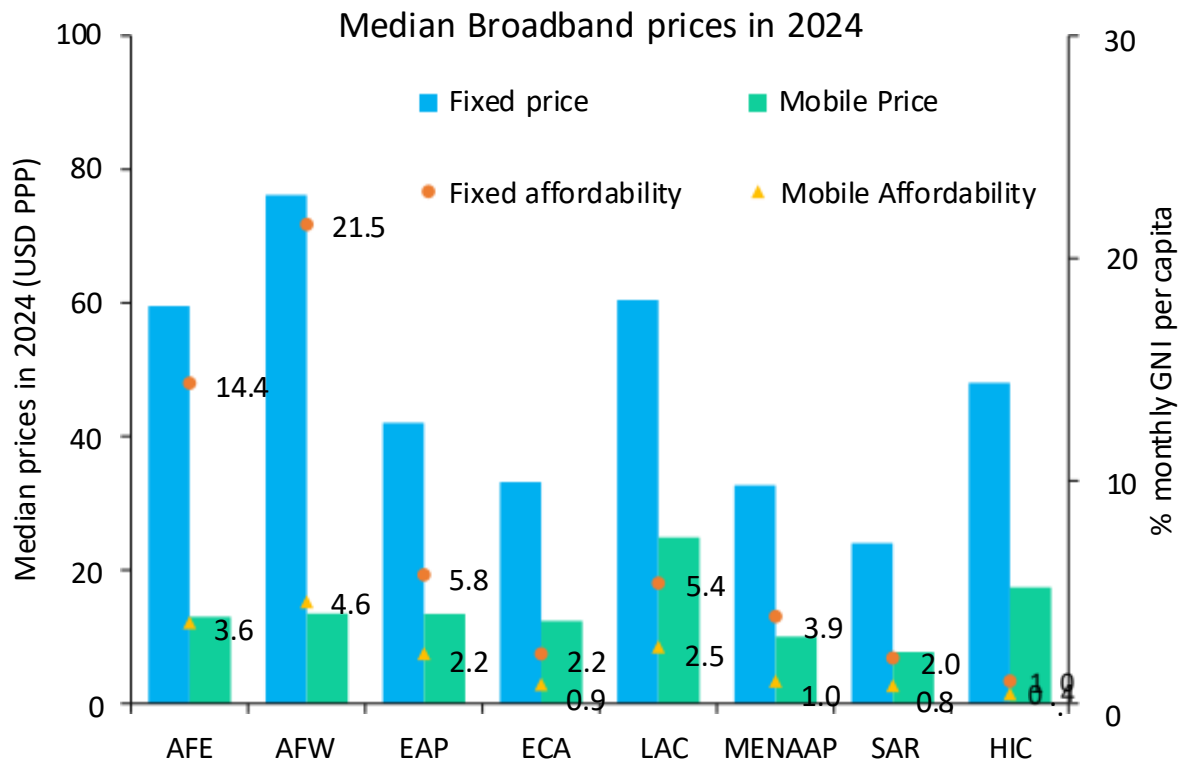


Source: Ookla.

Affordability

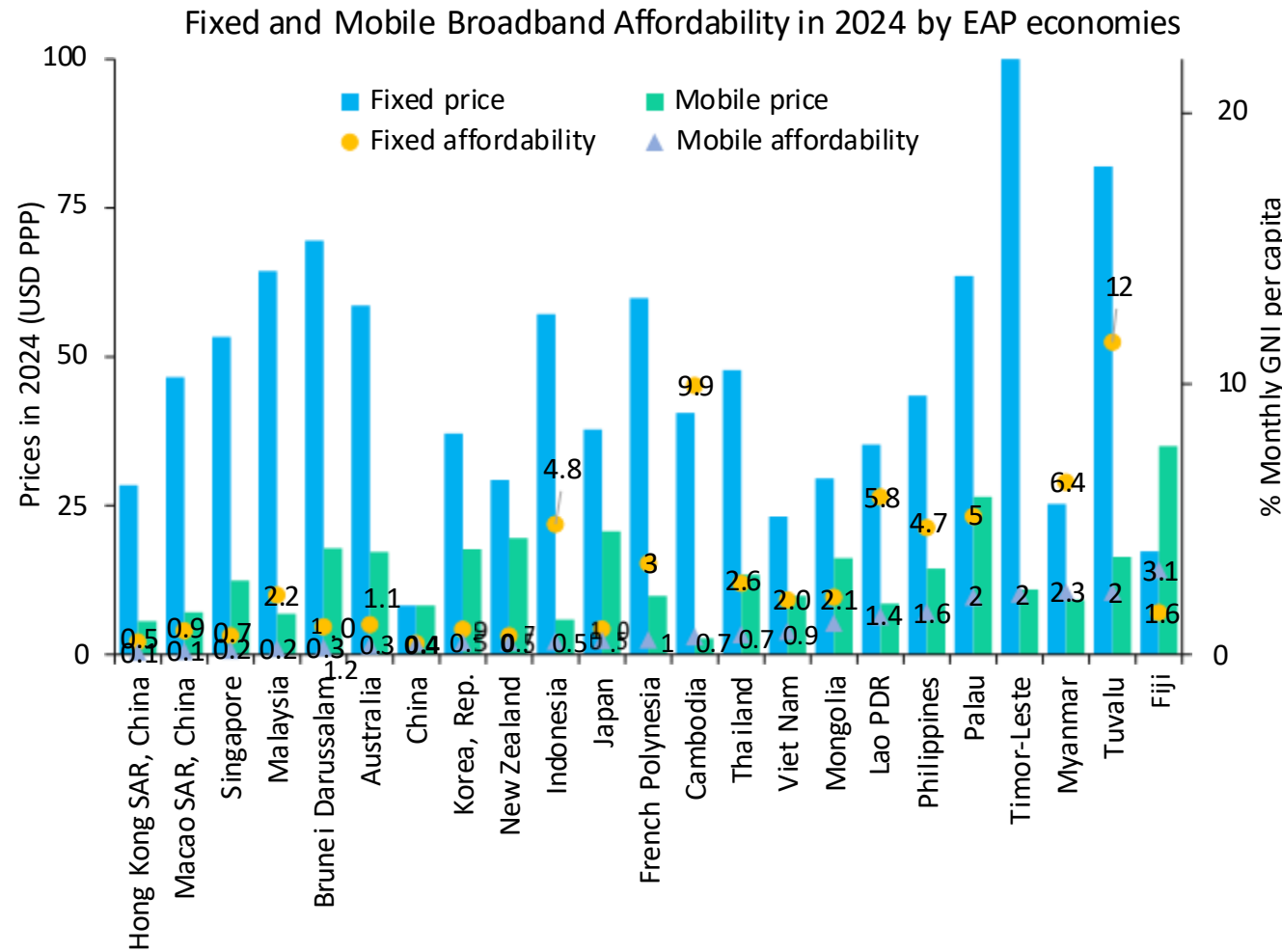
is essential because even where networks exist, the cost of devices and data keep people offline.

Fixed broadband affordability in EAP is well above global affordability benchmarks



Source: ITU.

Broadband affordability in EAP shows sharp disparities, with fixed prices exceeding 4% of monthly income in small island states, while China sees just 0.4% for both fixed and mobile



World Bank Group Support for Connectivity

WHAT THE WORLD BANK GROUP IS DOING



Public sector infrastructure financing

Backbone, submarine cables, and middle- and last-mile fiber to premises, including to public facilities and commercially unviable areas.



Private sector mobilization

Available financing for private sector operator(s) to lower financing costs and provide access to capital for investments in broadband, submarine cables, telco towers, data centers, and new technologies, and for market expansion and development.



Policy and regulatory environment

Infrastructure policies for infrastructure sharing, rights of way, permits etc.; competition policies for allocation of spectrum, open access, market access.



APAC in action —

- Philippines: WBG supported the adoption of the landmark Konektadong Pinoy Act, opening up the market to competition, mandating infrastructure sharing, and liberalizing spectrum. WBG is financing fiber backbone and public connectivity in rural Mindanao.
- Pacific: WB has invested around \$50 million and mobilized \$80 million (a ratio of a little over 150% across our PCM operations).

Digital Public Infrastructure

is crucial to unlock “meaningful” connectivity but remain inaccessible for many people.

THE CHALLENGE

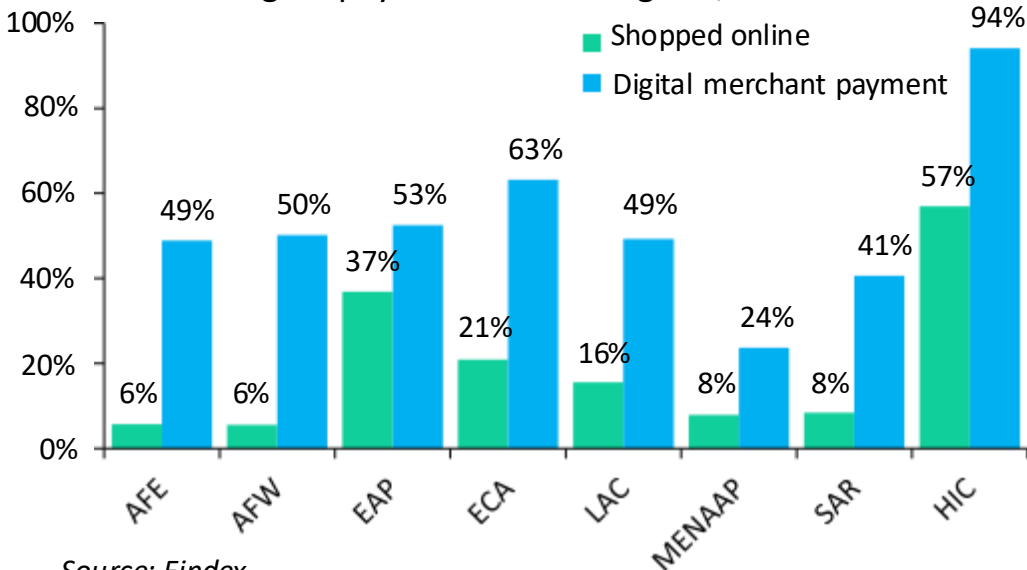
< 1/2

of EAP and SAR economies have online digital identity

0.5 billion

people in EAP and SAR do not have access to an official digital ID for online transactions

Digital payments across regions, 2024



Source: Findex

WHAT THE WORLD BANK GROUP IS DOING

- **Digital Public Infrastructure (DPI) for Service Delivery** – WBG supports countries to design, implement, and safeguard them, with governance, inclusion, and privacy protection by design.
- **Integrated Service Delivery** – supporting governments to transform from siloed service delivery to life event-based service delivery through service design labs.
- **AI-enabled Integrated Service Delivery** – transforming from fragmented registry and “closed data” and services silos to open and interconnected registry and geospatial data for integrated, AI-enabled service delivery

APAC in action —

- WBG supported Indonesia’s DPI by advancing trusted digital identity and interoperable digital public services.
- WBG is helping Nepal build national DPI through a citizen service platform, digital credentials, digital payments and a National Data Exchange that enables secure and interoperable data sharing across governments.

Access to AI

is still limited for majority of developing economies and requires alternatives, such as Small AI.

THE CHALLENGE

13.8 GW

data-center capacity in EAP and SAR— under half the Americas' 43.4 GW, and concentrated in a few advanced economies

85%

of apps in the app stores are only in English or Spanish; most LLMs underperform for, e.g., the world's 97m Vietnamese speakers

Without local data, compute and language coverage, AI risks a new divide — “networks exist but the benefits of AI remain out of reach.”

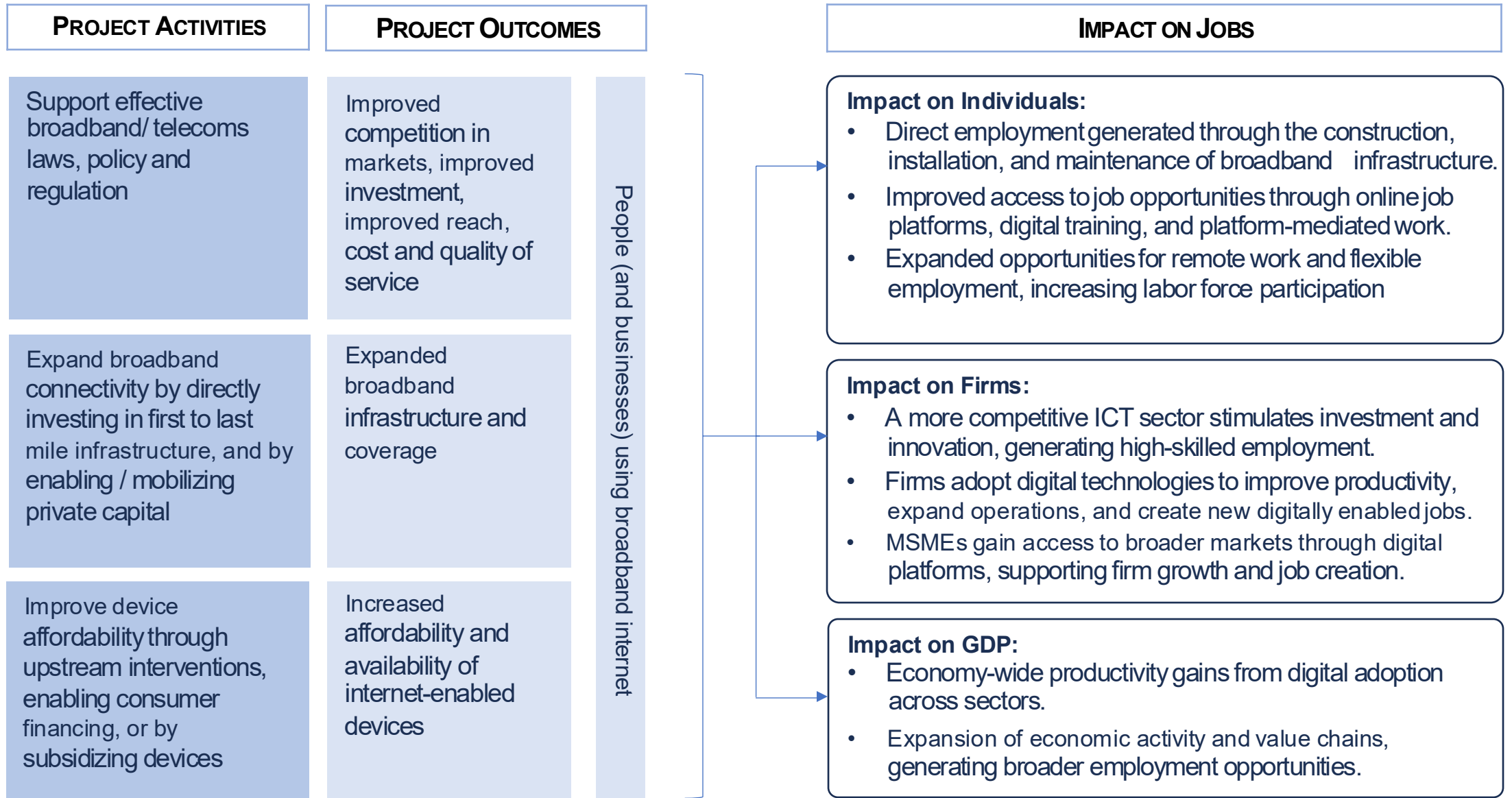
WHAT THE WORLD BANK GROUP IS DOING

- **Shaping strategy** — the World Bank has helped develop 10+ national AI strategies (as of 2024).
- **Building AI-ready foundations** — responsible AI governance and digital skills are essential for development and adoption of AI solutions.
- **Financing local compute** — backing carrier-neutral / colocation data centres and taking pre-lease risk in frontier APAC markets.
- **Platform investments** — via DigitalBridge, supporting data-centre and tower companies across Malaysia and Indonesia.

APAC in action — Malaysia (Yondr, Johor Bahru): IFC provided \$150m across two rounds plus pre-lease financing for one of the largest data-center campuses in emerging markets, mobilising \$877m of private capital.

APAC in action — Korea–WBG Global Digital Knowledge Center (launched 2025): a hub to accelerate digital transformation and harness AI, convening governments, the private sector, academia and civil society across the region.

From Connectivity to More and Better Jobs



Thank you

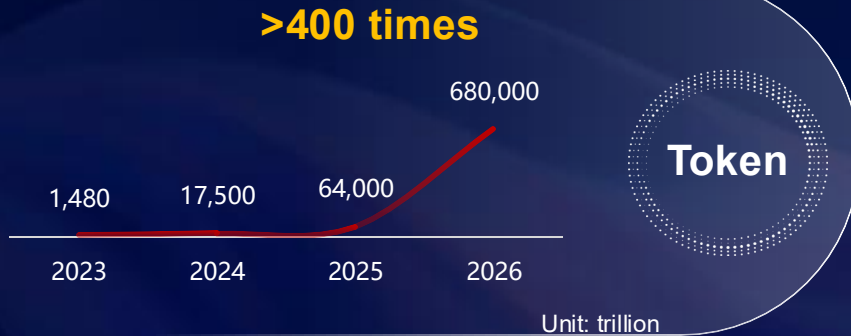


Co-Prosperity by Enhancing the Digital and AI Literacy

Evolution Trends of Computing Power Networks in the AI Era

AI Era is Now, Changing the Way We Live and Work

Token Consumption Increase by



Traffic growth brought by AI services



AI Model, Devices, Applications Widely Entering People's Life

Live

1,000+

AI native terminal category
@2028



Office

900M+

ChatGPT weekly active subscribers
@2026



Production

>99.9%

Accuracy of defect inspection
@2024



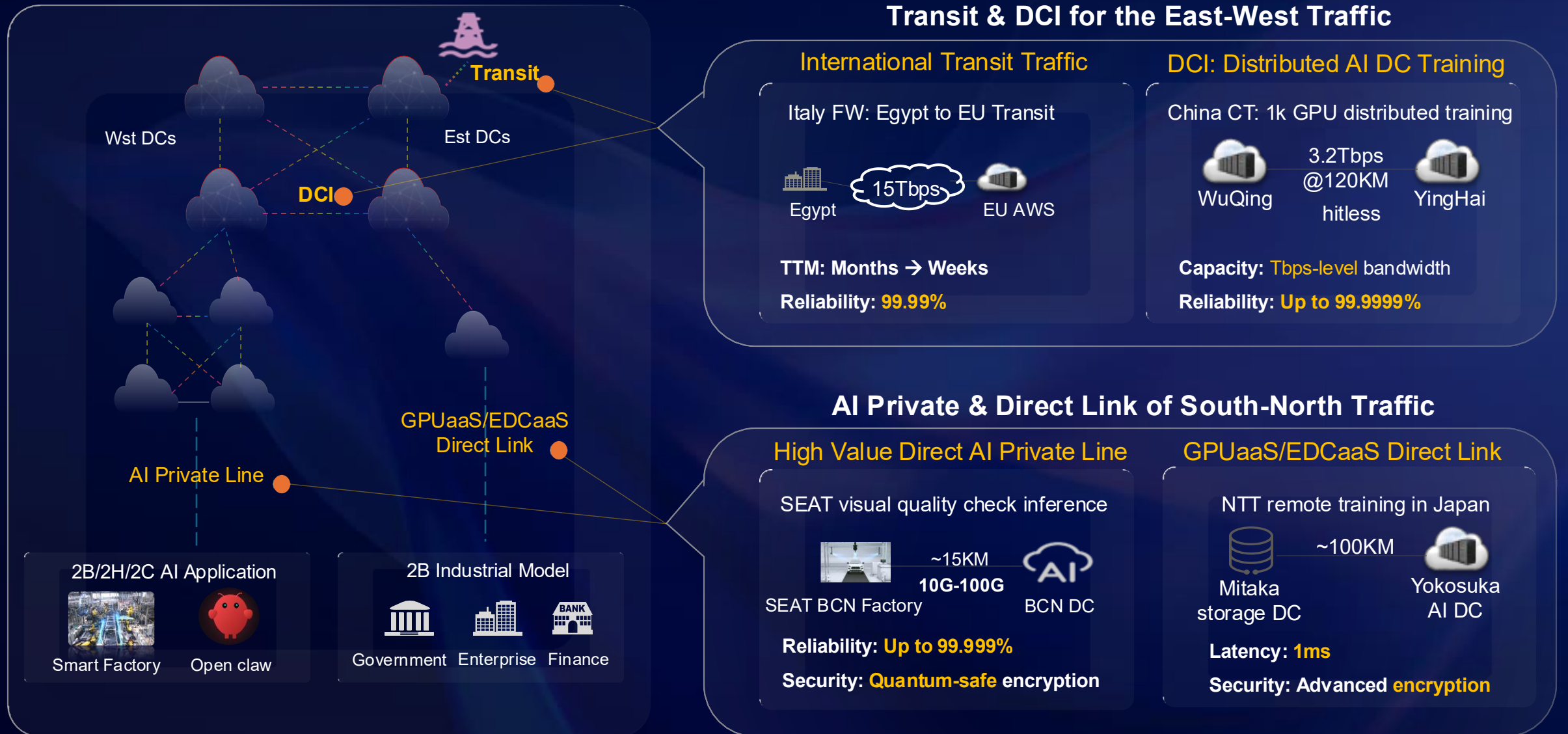
Travel

>40%

Intelligent driving penetration
@ 2030



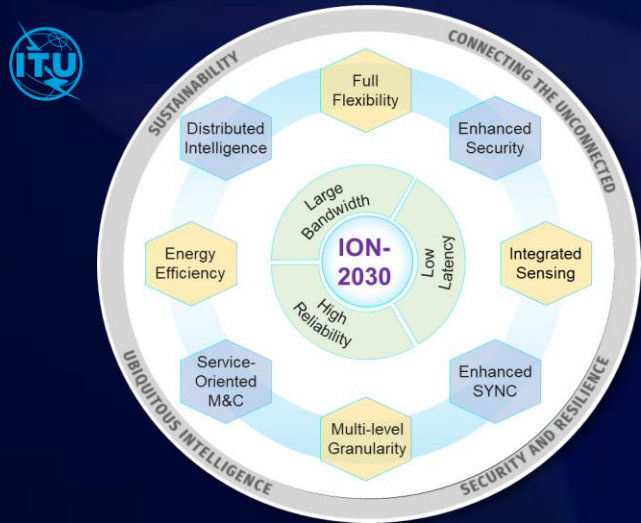
4 Types of Services Reshapes the Network



ITU-T Released ION-2030, Next Generation Optical Network

~ Oct 2025

ITU-T released ION-2030



20+ industry partners

forge industry consensus together



...

2026~

Detailed scenarios and criteria for 3 sub-projects



- **ION-aiDC:** Optical technologies in ION-2030 for DC optimized for AI



- **ION-aiBB:** UC and requirements of AI enhanced ION-2030 for broadband



- **ION-aiHome:** AI-enhanced home networking

ION-2030 Optical Network Architecture for AI

• Sustainability • Connecting the unconnected • Security and resilience • Ubiquitous intelligence

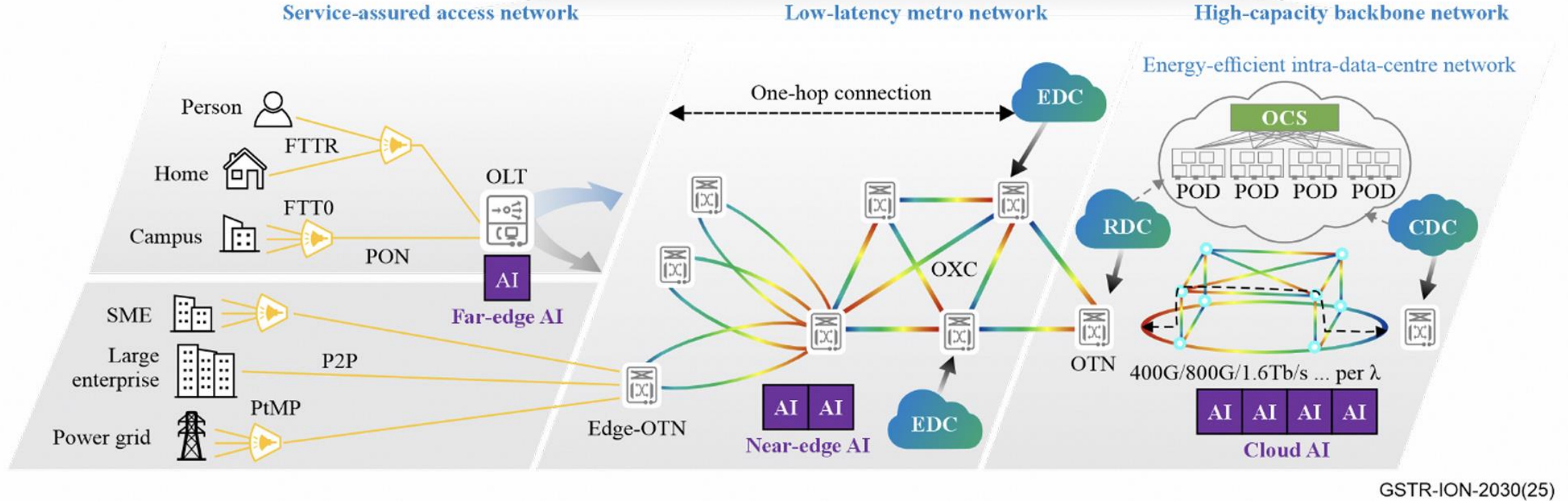
ION-2030 for AI:

Large bandwidth and coverage

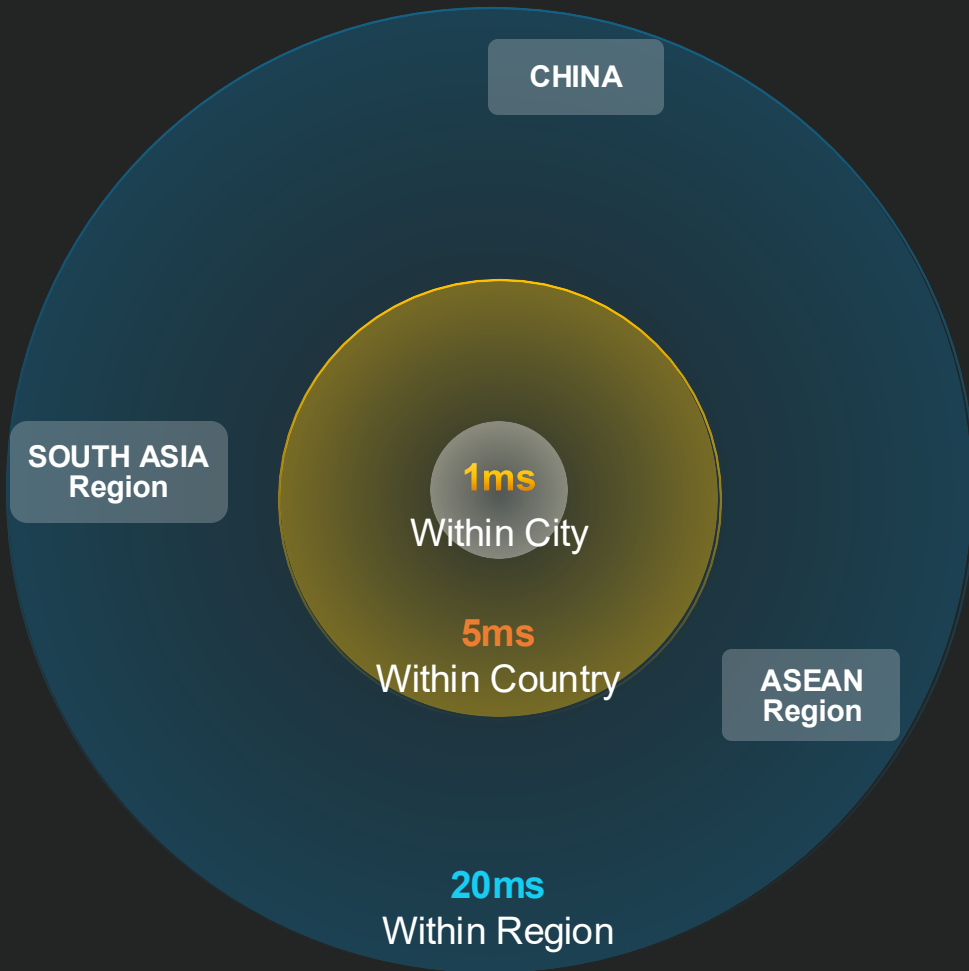
Low latency and jitter

High availability and resilience

AI for ION-2030: E2E guarantee of QoS and QoE with automation, optimization, and protection



Deterministic Low Latency: 1-5-20ms Latency Circle



1ms within City

- Deterministic low latency support ms-level access to computing power
- Igniting industrial innovation like Smart Manufacturing, remote surgery and cloud gaming

5ms within Country

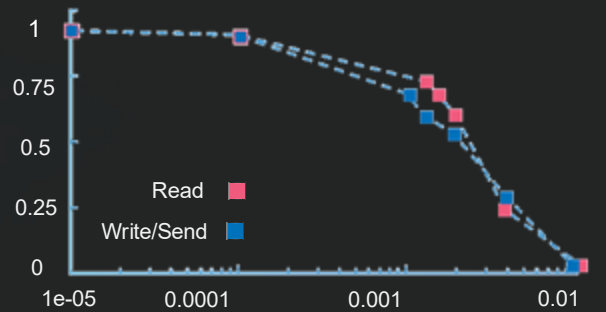
- Data Center "Active-Active" Architecture, national AI Computing Power Collaboration

20ms within Region

- **Submarine & Terrestrial Optical Cables Synergy**
- Support digital hub and International content/app distribution and partner connectivity

Zero-Outage Optical Network Ensures Always-On AI Services

Packet loss lead to Computing Loss



RDMA throughput in the case of packet loss

10^{-3}

Packet loss

50%

computing power loss

70% DCI faults by Fiber Cut

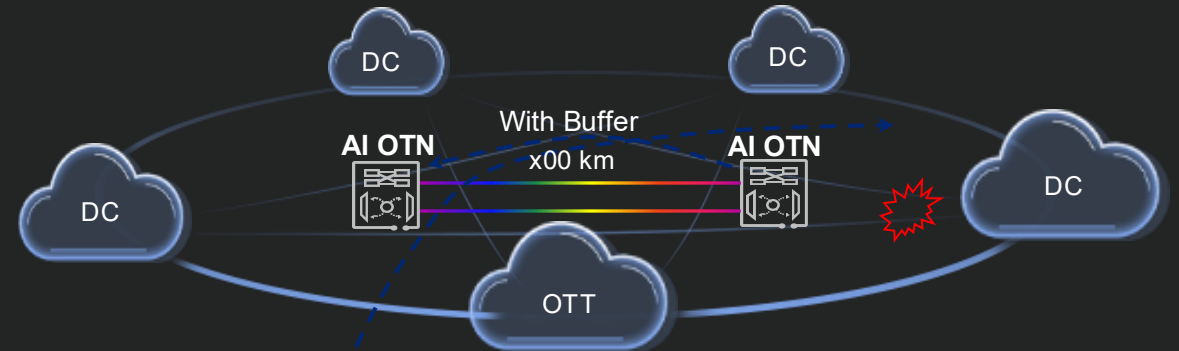
10 seconds

network failure

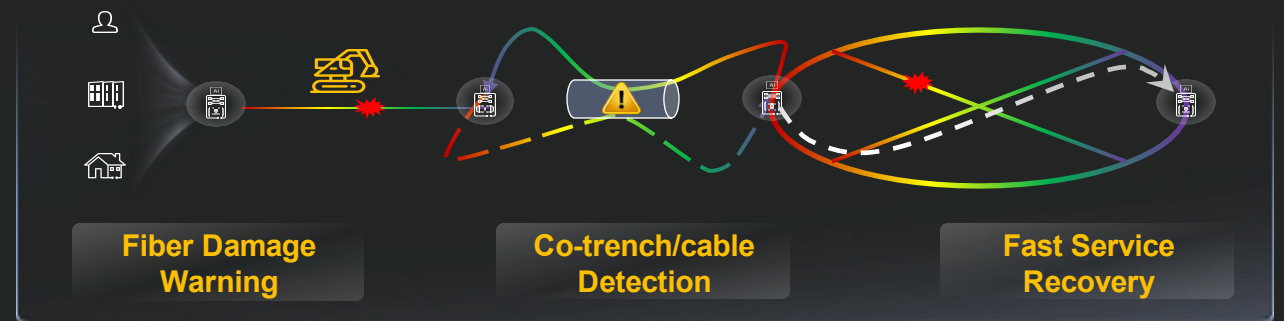
3 hours

computing power loss

Hitless Remote Transmission over RDMA Protocol



Building unbreakable optical network



Multi-Giga & 10-Giga Strategy ensure inclusive AI for ALL Enterprise/Home/Individuals



Smart Port @ Tianjin Port

- ✓ Labor savings **60% ↓**
- ✓ Containers Transport Time **50% ↓**
- ✓ Total Investment Saving **30% ↓**



Smart Hospital @ Shenzhen

- ✓ One code for all, Queuing **40min ↓**
- ✓ Ambulance: rescue time **30min ↓**
- ✓ Mortality rate reduced by **30% ↓**



Smart Campus @ Shanghai

- ✓ Quality inspection: accuracy **100%**
- ✓ it has realized the inclusive vision of **"computing power as accessible as water and electricity"**.



Benefits millions Giga-Home, enables 16 industries' Digitalization

Together Driving AI-Ready Optical Network Ensuring AI for ALL

Multi-Giga &
10Giga Strategy

1-5-20ms Latency Circle

Submarine &
Terrestrial Cables Synergy

AI-FAN

AI-OTN

SESSION 2 | THURSDAY, 16 JULY 2026

IsDB's Role in Infrastructure Development for Universal Meaningful Connectivity

Delivering on the Baku Action Plan – Regional Initiatives 2026–2029

Mr. Shaharyar Jawaid
Senior ICT Specialist, Islamic Development Bank

Infrastructure for inclusive digital transformation



Financing, knowledge, and implementation connected through a 57-country platform.



Financing

USD 250 million allocated for digital development and a wider Digital and AI Strategy Implementation Plan.



Technical expertise

PPP frameworks, infrastructure finance, and data-driven policy analysis.



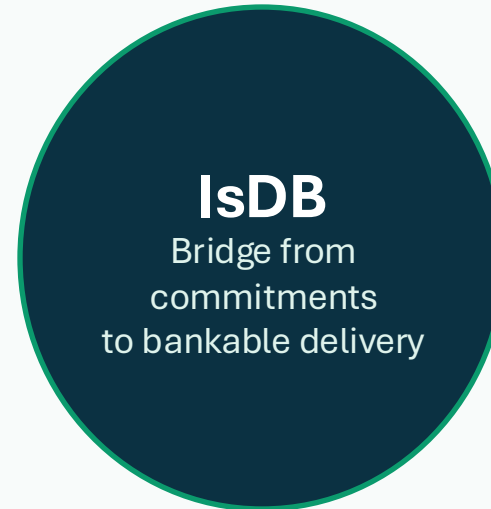
Country reach

57 member countries across four continents.



Partnership networks

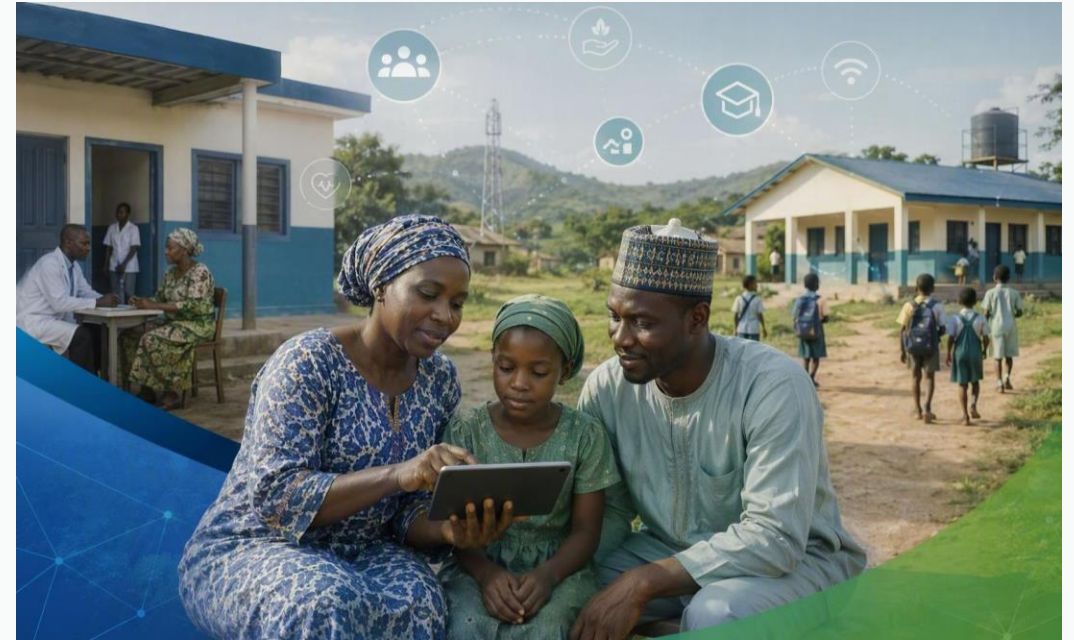
ITU, World Bank, UN agencies, MDBs, governments, and technology providers.



Universal meaningful connectivity is a foundation for inclusive development.

For remote communities, the goal is not simply to be connected, but to be connected in ways that improve lives.

Meaningful connectivity enables access to essential services and better opportunities.



Education



Healthcare



Public services



Markets



Jobs

Infrastructure becomes meaningful when people can use it to learn, work, access care, and participate in public life.

Translating regional priorities into financed programs and capacity-building partnerships.



ASP1

Inclusion

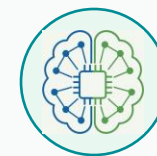
Targeted connectivity solutions for LDCs, SIDS, LLDCs, and remote communities.



ASP2

Transformation

Digital regulation training and policymaker capacity building for inclusive transformation.



ASP3

Infrastructure

Multiple projects and programs financed by IsDB including but not limited to submarine cable systems, fiber optics backbone programs and data center projects.

IsDB role: Finance WTDC commitments to bankable programs, delivery models, and implementation partnerships.

From pilot to scalable model in Gokina, Sambriyal, and Swabi.

The model combines infrastructure, services, skills, and governance so it can be replicated.

2,500

Approx. direct beneficiaries

500

People trained

50%

Women and youth participation



- Wi-Fi hotspots and digital access devices
- Telemedicine and Smart Education services based on community needs
- ITU Oversight and monitoring for transparency



Connectivity



Health



Education



Skills

From connectivity to development impact.

The Smart Villages model is an adaptable blueprint for underserved communities across the region.



Access

Broadband, Wi-Fi hotspots, and devices.



Services

Telemedicine, smart education, and public service access.



Skills

Literacy and advanced training for local users and champions.



Impact

Inclusive livelihoods and stronger communities.



Scalable governance

Dashboards, monitoring, and replicable implementation frameworks support each stage.

Closing the connectivity divide must also avoid a new AI readiness divide.



Policy Capacity

AI Academy with the World Bank: practical AI strategy and governance skills for 50–60 policymakers per cohort.



AI Use Cases

MDB AI Use Case Repository: evidence-based solutions across climate, agriculture, education, and health.

url:

<https://airepository.worldbank.org>



Compute Infrastructure

Green AI Compute Corridor: regional AI cloud hub concept in KSA to address compute access and infrastructure gaps.

Portfolio logic: build policy capability, share proven use cases, and expand access to responsible compute infrastructure.

Co-Design Co-Invest Co-Implement

Turning the Baku Action Plan into measurable impact requires partnership.

- **Co-financing partners** Scale Smart Villages, Small AI, Digital Infrastructure and connectivity models.
- **Knowledge sharing** Advance innovative financing and policy frameworks.
- **Technical collaboration** Connect regional initiatives and Capacity Building with global funding channels.
- **IsDB offers** Financing capacity, technical expertise, delivery experience, and a 57-country platform.

Let us connect the unconnected and ensure no community is left behind.

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ASIA-PACIFIC REGION

BANGKOK 2026

16–17 July
Bangkok, Thailand



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