DPI for Tax Administration: Setting the Frame

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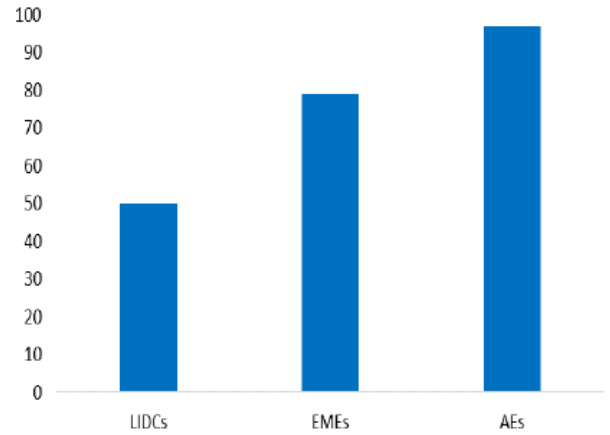
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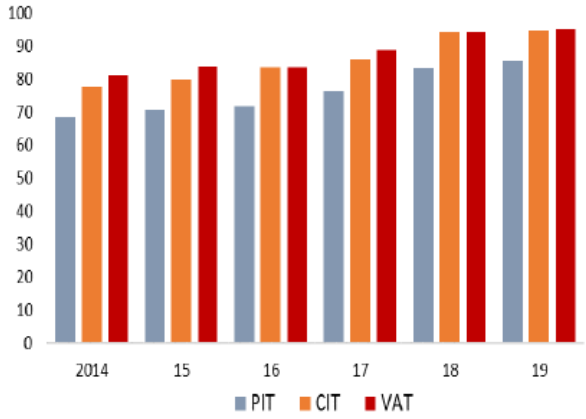
institute of development studies

Tax administrations are digitalising fast

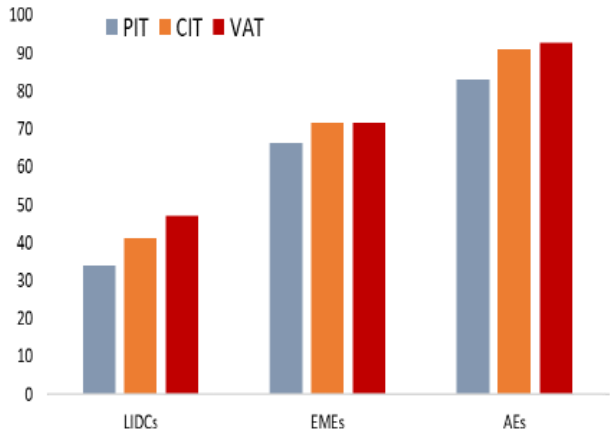
1. Share of Countries with Online Registration for Taxpayers
(Percent)



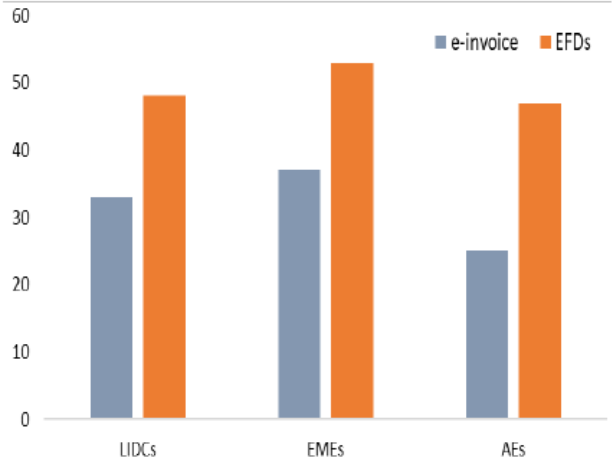
2. Share of Taxes Filed Online, by Tax Type, 2014–19
(Percent)



3. Share of Taxes Filed Online, by Tax Type, in 2019
(Percent)



4. E-invoicing and EFDs across countries
(Percent)



From: Nose M, Mengistu A. Exploring the Adoption of Selected Digital Technologies in Tax Administration: A Cross-Country Perspective. *IMF Notes. 2023;2023(008):A001. doi:10.5089/9798400258183.068.A001*

But barriers persist: legacy systems, cash dependence, limited data governance, digital literacy, weak connectivity. **More graphs →**

DPI approach can revolutionise the way in which Governments function.

Santoro, F.; Prichard, W.; and Mascagni, G. (2024) Digital IDs and Digital Payments – Opportunities and Challenges for Tax Administration, ICTD Policy Brief 7, Brighton: Institute of Development Studies, DOI: 10.19088/ICTD.2024.021

What is Digital Public Infrastructure? A systemic approach to digitalisation

- “Digital public infrastructure (DPI) is a new term referring to the basic capabilities that are building blocks for developing **digital services** at a **societal scale**. DPI is the intermediate layer between physical infrastructure (for example, broadband and data centers) and sectoral applications (for example, social protection and e-commerce). The most common types of DPI are platforms and systems for … **ID, payments, and data sharing**.” (World Bank, 2023)

- “Digital public infrastructure (DPI) is a set of digital systems that enables countries to safely and efficiently provide **economic opportunities** and deliver **social services**. DPI spans the **entire economy**, connecting **people, data, and money** in much the same way that roads and railways connect people and goods.” (Gates Foundation, 2024)

The DPI “stack”: core components

- Digital ID and authentication
- Digital payments
- Data exchange systems







Beyond the components: DPI core pillars

Key principles:

Open-source, interoperable technology: resilient, adaptable capable of evolving

Robust governance: maximise public benefit, trust and transparency; secure data protection, grievance redressal and intellectual property rights

Local market competition: collaboration between public and private sectors, civil society and end-users

Main purposes:

Inclusion: streamlining service delivery and ensuring equity and empowerment

Resilience: enabling uninterrupted, remote emergency assistance through digital networks operating at national scale

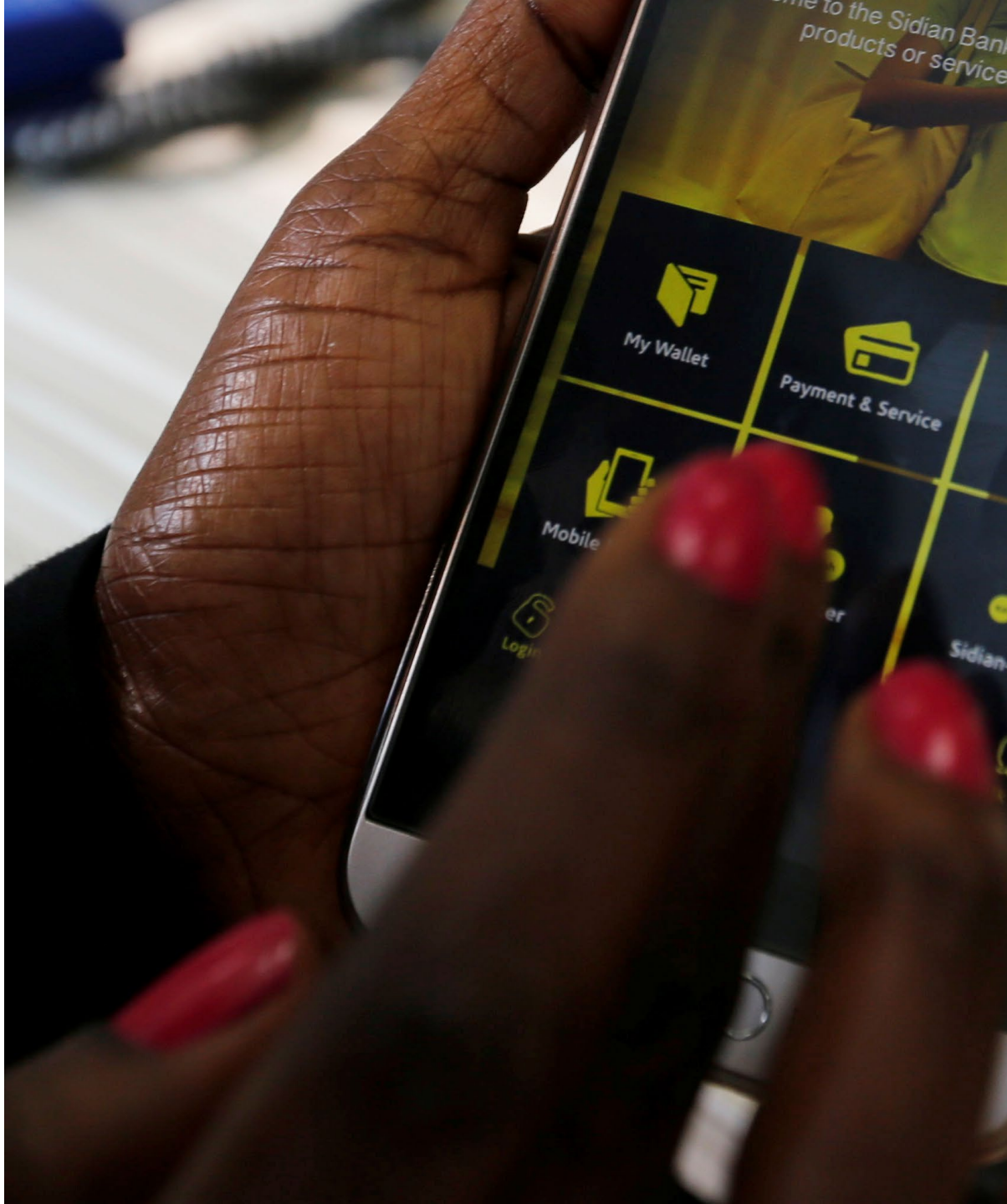
Sovereignty: autonomy and flexibility to plan, design, and implement

Innovation: fair market competition

How DPI supports tax administration

- Registration: IDs, validation, unique link
- Filing: pre-filled, simpler returns
- Payment: instant digital payments
- Automated third-party reporting
- Compliance risk: anomaly detection
- Service delivery: remote e-services
- Communication: targeted messaging

- DPI cuts across the entire taxpayer journey – not one function in isolation



Digitalisation is not DPI: a tax authority can be highly digital yet lack cross-government interoperability

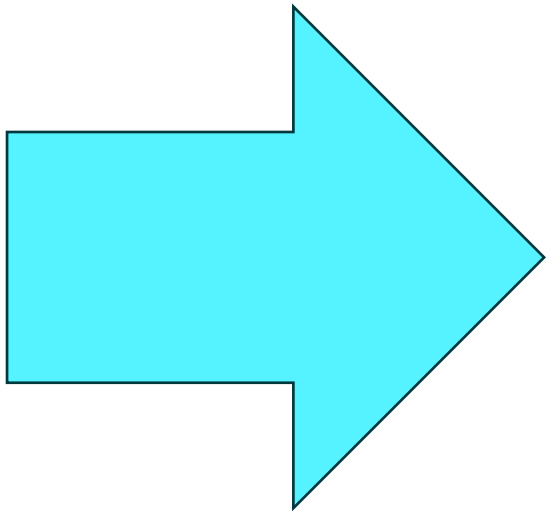
Digital tax systems (traditional)

E-filing and e-payment portals in place

Taxpayer data locked inside the authority

Identifiers not linked across government

Third-party data via ad-hoc requests



DPI approach

Systems built on shared IDs and payment rails

Data flows across government via APIs

Interoperability and governance by design

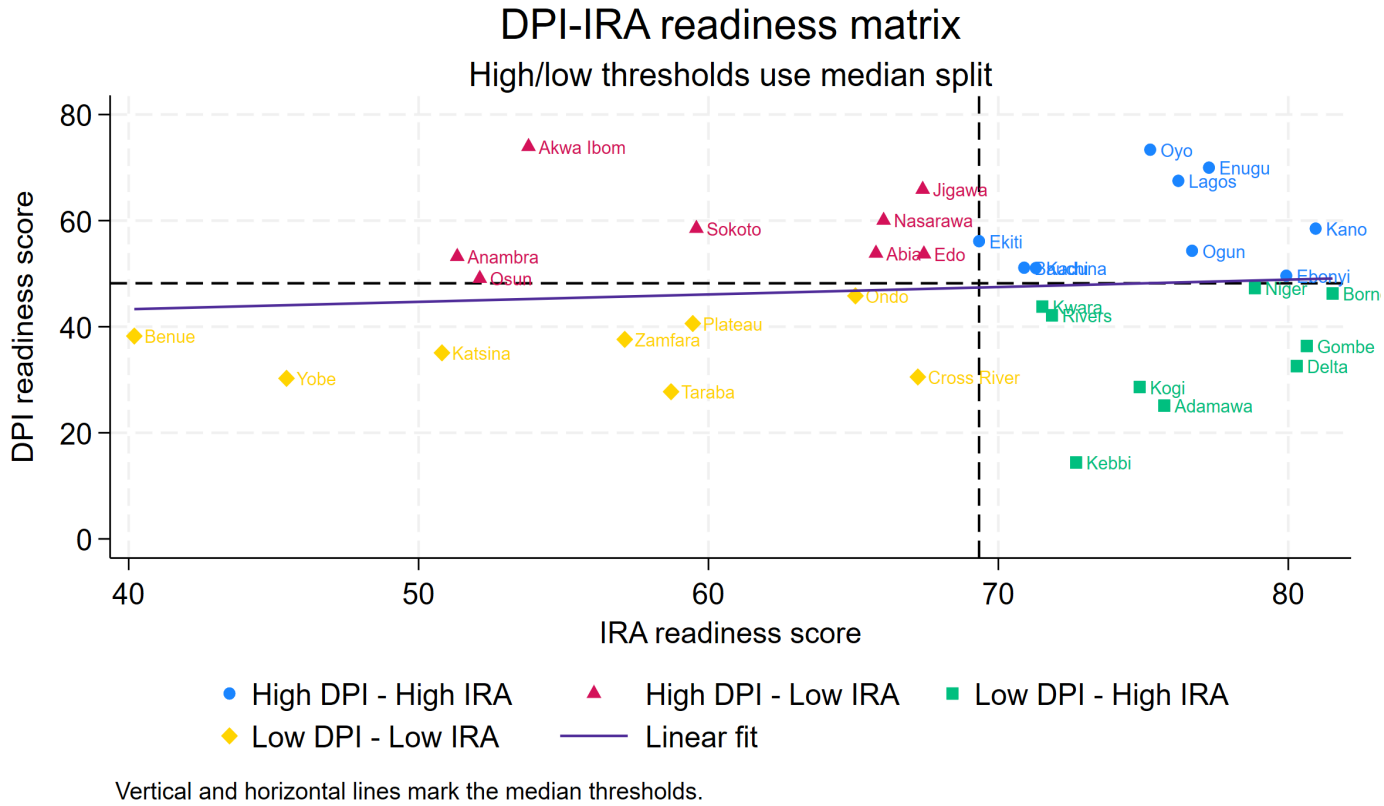
Continuous, automated third-party reporting

Digitalisation vs DPI in practice: new evidence from Nigeria

DPI readiness barely correlates with digital tax technology (IRA) at State level

- **High DPI – High IRA** (Lagos, Oyo, Enugu, Kano): frontrunners, ready for AI pilots
- **High DPI – Low IRA** (Akwa Ibom, Jigawa): rails in place, tax systems lag
- **Low DPI – High IRA** (Borno, Delta, Kogi): digital tax tools on weak shared rails
- **Low DPI – Low IRA** (Benue, Yobe, Katsina): foundational investment first

→ **Takeaway:** digitalising tax administration **is not the same as** building **DPI**.



Why DPI matters for AI: what AI tools need to work

1

RELIABLE UNIQUE IDENTIFIERS

TINs linked to national IDs, matching records across sources



LINKED, CONSISTENT DATASETS

2

Interoperable registries feeding clean, joined-up data

3

DIGITAL PAYMENT TRAILS

Transaction records AI can mine for risk and compliance

LEGAL ACCESS TO RELEVANT DATA

4

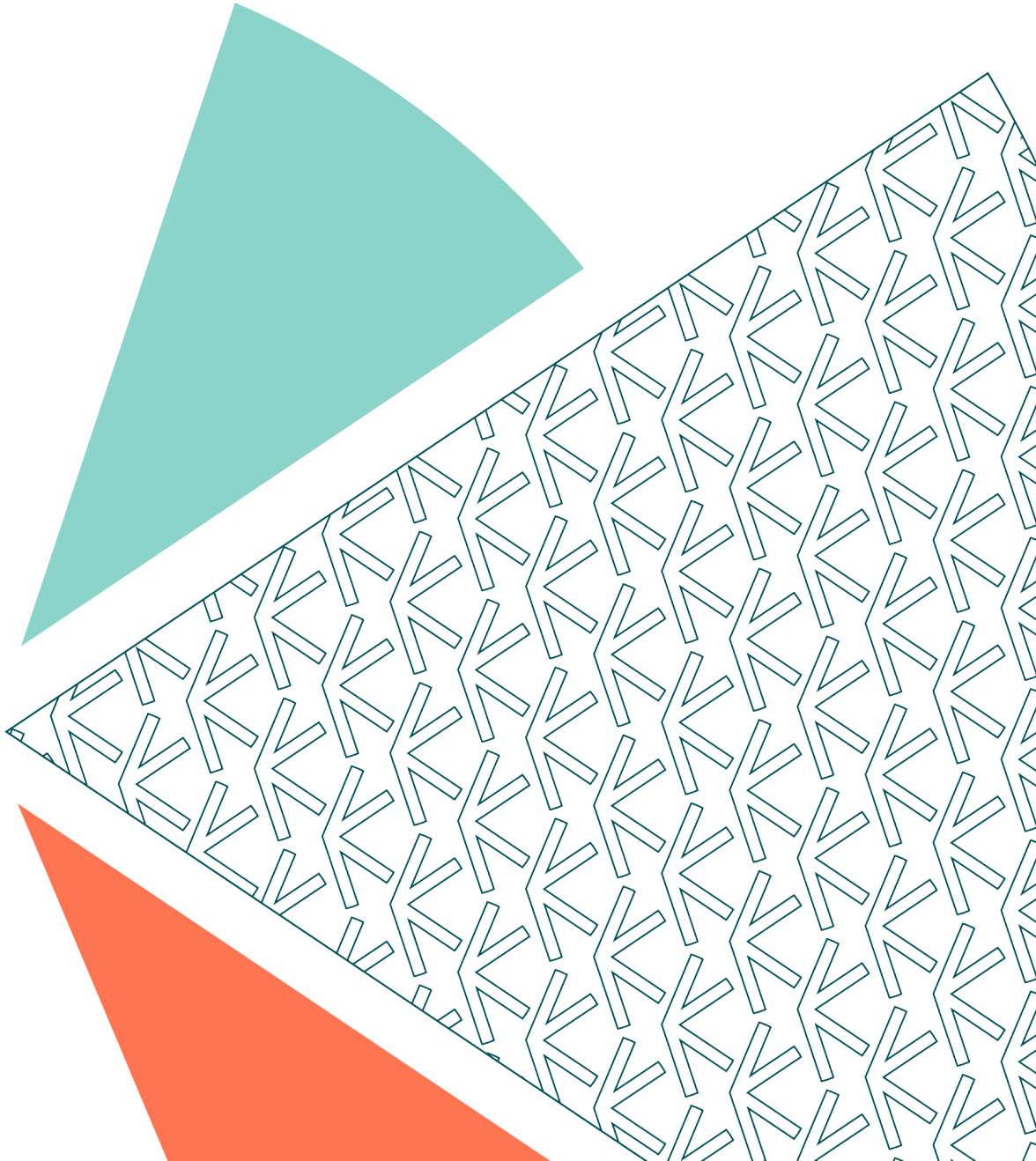
Mandates and data protection rules that permit AI use

Without these rails AI underperforms, and risks excluding or unfairly targeting offline taxpayers

Questions for the group

For discussion in this working group:

- Which DPI components matter most for tax administration?
- Where are African tax administrations progressing?
- Where are the biggest gaps, and why?
- Is DPI a precondition for AI, or can they advance in parallel?
- Who risks being left out, and how do we design for inclusion?



Thank you!

Contact:

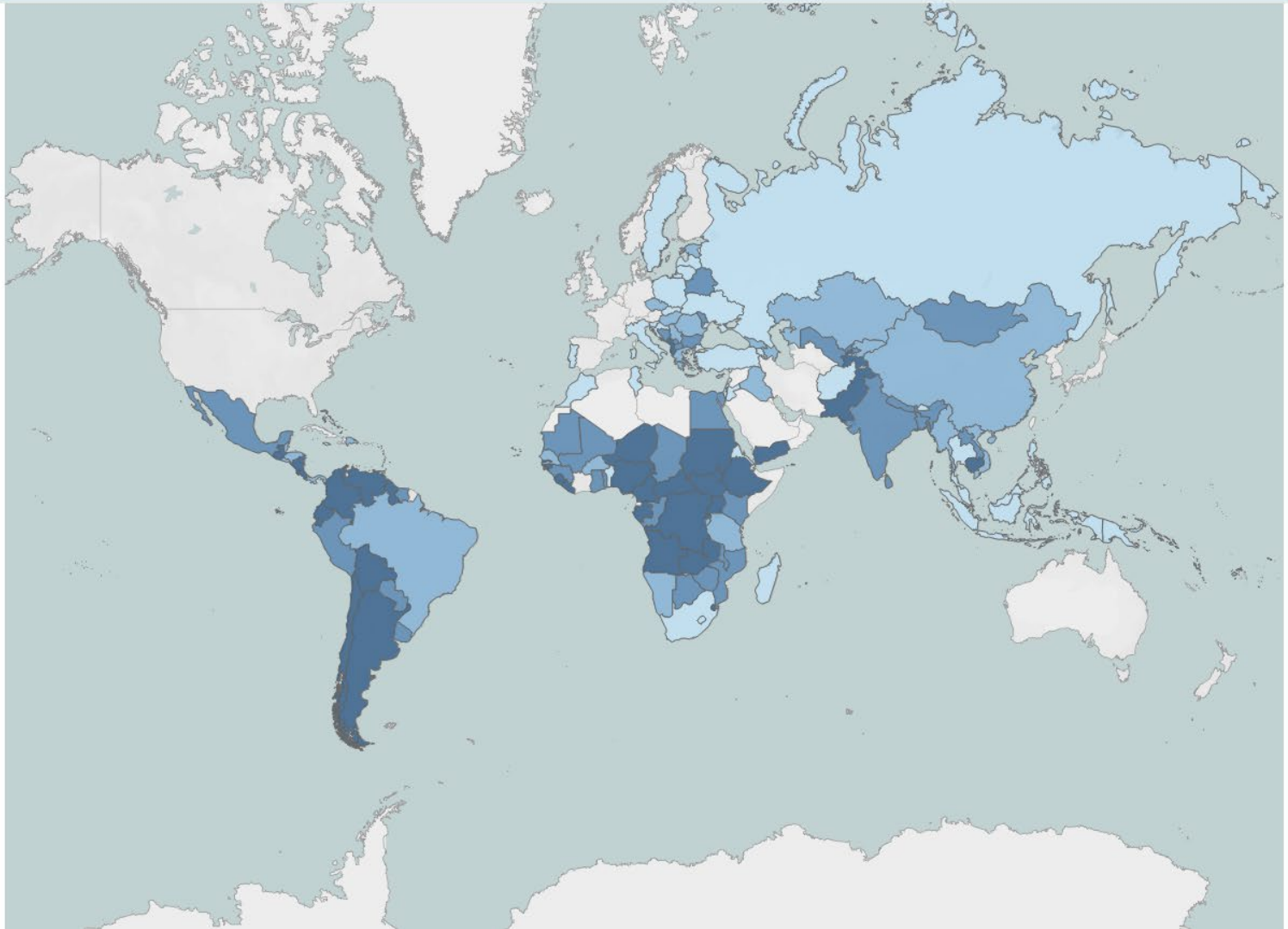
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Tax administration in SSA features frequent interactions between tax officials and taxpayers

If there were visits, average number of visits or required meetings with tax officials

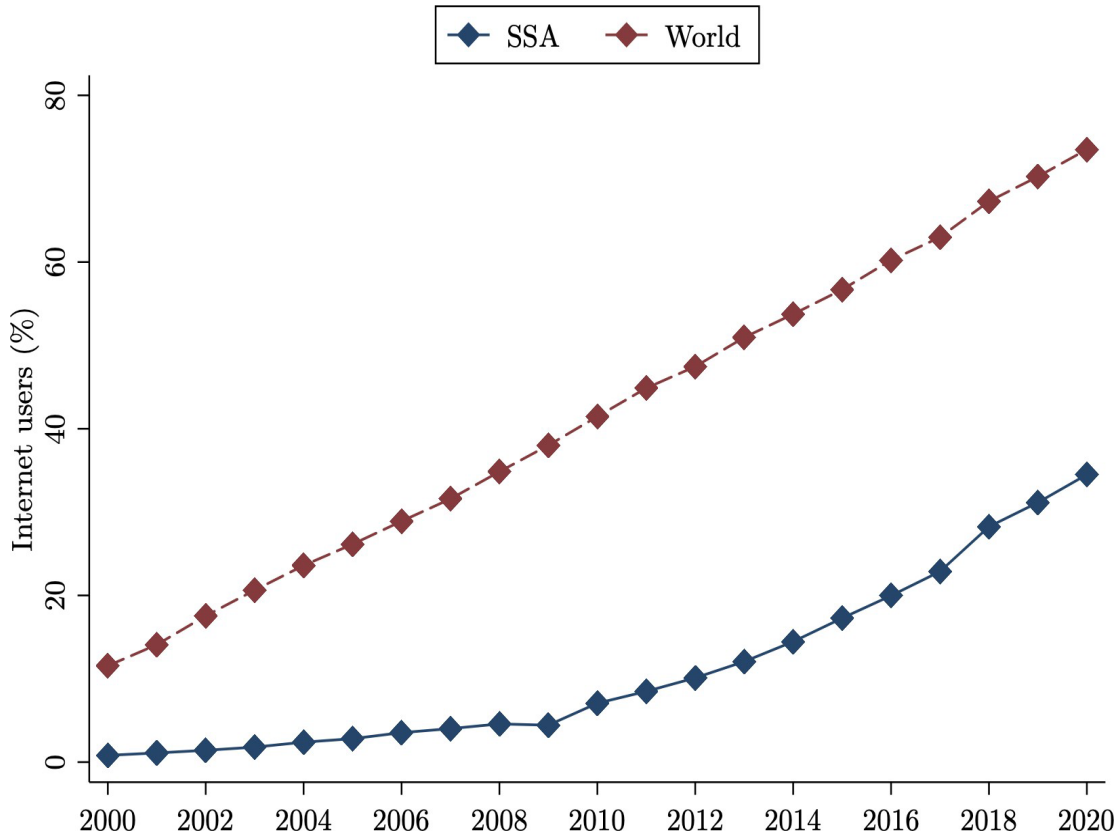
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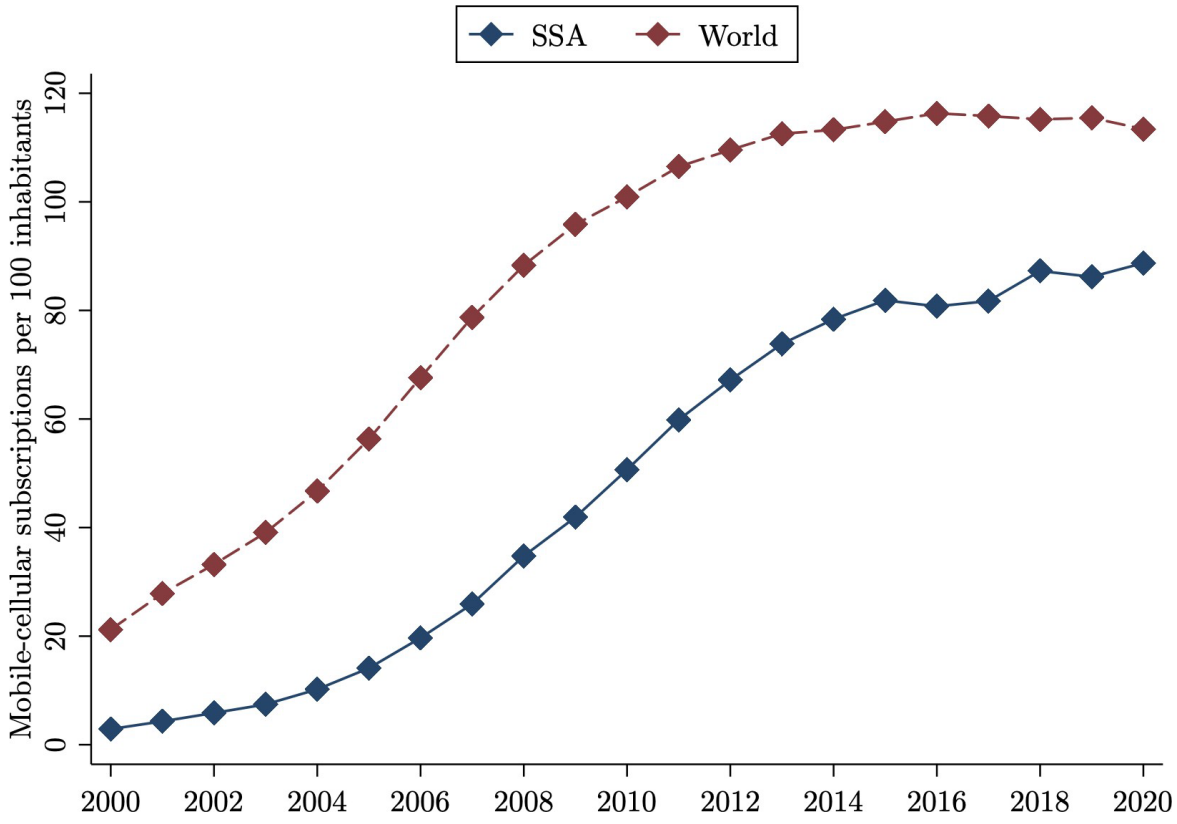
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Growing use of information technology in SSA

Percentage of Population using the Internet

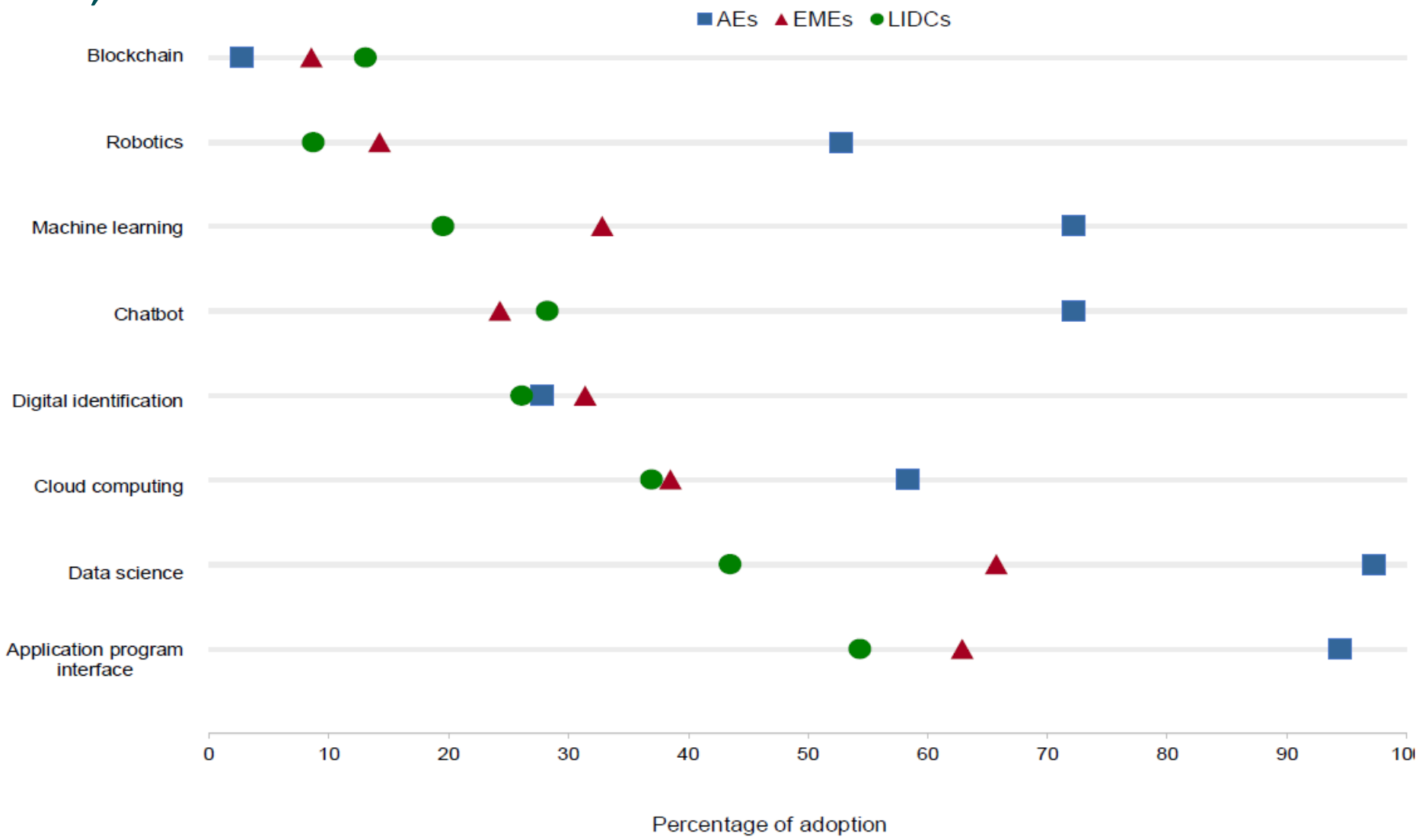


Number of Mobile Phone Subscriptions



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Adoption of Emerging Technologies in RA across Regions in 2019, in Percent



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