



The Fundamental Role of Digital Identity in the Global South: Boosting Social and Financial Inclusion for Migrants

Applied Research Project 2023-2024



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U.S. Customs and Border Protection officers screen international passengers arriving at the Dulles International Airport in Dulles, Va., November 29, 2016.

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Executive Summary

Digital ID is a form of legal identity that relies on the end-to-end digitization of the identity ecosystem to accelerate progress towards the **Sustainable Development Goal 16.9, seeking to provide legal identity for all, including free birth registration**, and the objectives of the Global Compact for Safe, Orderly, and Regular Migration. The present research on the fundamental role of digital ID in the Global South reviews the impact of digital ID systems and policies in realizing social and financial inclusion, as well as boosting trade and commerce, with emphasis on migrant populations. The report examines strategies adopted by national and international actors in South Asia and Sub-Saharan Africa, through desk-research and Key Informant Interviews (KIIs).

The report findings indicate that:

- National digital ID programs have **enhanced service delivery**, especially in emergencies. By overcoming logistical challenges like distance and structural issues such as leakage of funds, digital ID can enhance social inclusion of citizens and migrants holding residence permits.
 1. In India, the Public Distribution System (PDS) has used the Aadhaar digital ID system to allow beneficiaries to withdraw their share of food rations from any Fair Price Shop (FPS) in the country, benefiting migrant households.
 2. In Ghana, the GhanaCard is being used to allow mobile phone-based registrations to the National Health Insurance Scheme (NHIS), enabling daily wage workers and residents of remote areas to register for mandatory health insurance.
- Digital ID has enabled electronic Know Your Customer (e-KYC) processes, thereby facilitating the increased use of Mobile Money Systems (MMS). In turn, these systems ensure **low transaction costs and remote accessibility** to unbanked populations.
 1. In India, digital payments through the United Payment Interface (UPI) account for 68% of all transaction payments by volume. The Aadhaar-based verification process permits the inclusion of migrants in the national financial systems.
 2. Nigeria is adopting Payment Service Banks (PSBs) with a staged identity verification process that can ensure a minimum level of financial inclusion for persons with insufficient identity documents, including migrants.
 3. Cross-border traders in the Economic Community of West African States (ECOWAS) and the Common Market for Eastern and Southern Africa (COMESA) region can benefit from the expansion of MMS and interoperability of digital ID, through a reduction in time taken to cross border check-posts and a low-cost alternative to carrying liquid cash.
- Regional commitments towards knowledge sharing and interoperability seek to ensure that these systems can enhance the **mobility of persons and capital**.
 1. In the East African Community (EAC), Kenya, Rwanda and Uganda have recognised each other's national biometric ID cards as valid travel documents that are a lower-cost alternative to passports.
 2. In ECOWAS, the ECOWAS National Biometric Identity Card (ENBIC) is being adopted as a valid travel document that can, under the Free Movement Protocol, ensure the right of visa-free travel, residence and establishment to all ECOWAS countries.
 3. World Bank's West African Unique Identification for Regional Integration (WURI) program has partnered with West African countries to provide an interoperable, universal identification number to all natural persons in the territory. This seeks to mitigate exclusion from essential services based on citizenship status or lack of documentation.
- Findings also indicate the risks of **systemic exclusion and surveillance** as digital ID is made mandatory to access key social and financial services.
 1. The report highlights mitigation strategies such as robust legal frameworks, user-centric design approaches, and measures to include marginalized and vulnerable persons.
- The report recommendations are based on the analysis of best practices across the thematic areas of social inclusion, financial inclusion, regional integration, and risk mitigation.

List of Acronyms

ACI Worldwide	Applied Communications Inc. Worldwide
AfCFTA	African Continental Free Trade Area Agreement
AI	Artificial Intelligence
ASEAN	Association of Southeast Asian Nations
API	Application Programming Interface
AU	African Union
BIMS	Biometric Identity Management System
BISP	Benazir Income Support Program
CBC	COMESA Business Council
CBN	Central Bank of Nigeria
CBT	Cross Border Trade
CNIC	Computerised National Identification Card
COMESA	Common Market for Eastern and Southern Africa
D-PKI	Decentralized Public Key Infrastructure
DPI	Digital Public Infrastructure
e-KYC	electronic-Know Your Customer
e-IDAS	Electronic Identification, Authentication and Trust Services (EU regulation)
EAC	East African Community
ECOWAS	Economic Community of West African States
EEC	Ehsaas Emergency Cash Transfer Program

ENBIC	ECOWAS National Biometric Identity Card
EU	European Union
fID	Foundational ID Systems
FPS	Fair Price Shop
GDP	Gross Domestic Product
GNI	Gross National Income
GRM/CMS	Grievance Redressal and Case Management System
GSMA	Global System for Mobile Communications/Groupe Spécial Mobile (GSM) Association
ICAO	International Civil Aviation Organization
ID4D	World Bank's ID for Development Program
IDC	Identity Credentials
IFAD	International Fund for Agricultural Development
IOM	International Organization for Migration
IPS	Instant Payment System
IRC	International Rescue Committee
KYC	Know Your Customer
MFIs	Microfinance Institutions
MGNREGA	Mahatma Gandhi National Rural Employment Guarantee Act, 2005
MMO	Mobile Money Operator
MMP	Mobile Money Provider
MMS	Mobile Money System

MNO	Mobile Network Operator
MSME	Micro, Small & Medium Enterprise
MTN	Mobile Telephone Network
MyNHIS	My National Health Insurance Service
NADRA	National Database and Registration Authority
NFIS	National Financial Inclusion Strategy
NHIS	National Health Insurance Scheme Card
NIBSS	Nigeria Inter-Bank Settlement System
NIC	National Identification Card
NIN	National Identification Number
NIP	NIBSS Instant Payments of Nigeria
NIS	Nigerian Immigration Services
OECD	Organization for Economic Co-operation and Development
OTP	One-time Password
PDS	Public Distribution System
PENCOM	National Pension Commission of Nigeria
POS	Points of Sale
PSB	Payment Services Bank
PSP	Payment System Provider
QR Code	Quick Response Code

REC	Regional Economic Communities
RPSS	Regional Payment and Settlement System
SADC	Southern African Development Community
SCG	Senior Citizen Grant of Uganda
SIM card	Subscriber Identity Module card
SATA	Smart Africa Trust Alliance
SMS	Short Message Service
SSI	Self-Sovereign Identity
UNECA	United Nations Economic Commission for Africa
UNHCR	United Nations High Commissioner for Refugees
UNI	Unique Identification Number
UPI	Unified Payments Interface
USD	United States Dollar
WURI	West Africa Unique Identification for Regional Integration

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Introduction and Background

Access to legal identity was enshrined as a human right by Article 6 of the Universal Declaration of Human Rights¹. Consequently, Sustainable Development Goal Target 16.9 seeks to ensure legal identity for all, including free birth registration by 2030.² It responds to the challenges faced by persons without legal or official identification in accessing social, political, economic, and legal rights. Actors at the international level, such as the UN Legal Identity Agenda Task Force and the World Bank Identity for Development (ID4D) program are collaborating with national governments in the Global South, as well as continental organizations such as the African Union (AU) and the European Union (EU). The Objective 4 of the Global Compact for Safe, Orderly and Regular Migration further commits to providing proof of legal identity and adequate documentation to all migrants.³ The International Organization for Migration (IOM)'s Institutional Strategy on Legal Identity advocates for the operationalization of legal identity by supporting the development of consular services and national civil registration systems, furthering access to documentation such as proof of nationality.⁴ These alliances seek to bridge the identity gap, bringing official identification to approximately 850 million people who lack it globally.⁵

Within the Global South, comprising most of Africa, Asia, Latin America and the Caribbean, as well as Oceania, countries building their foundational ID systems have begun digitizing the process from production and delivery to verification. Digital ID, in this context, is substituting analog forms of legal ID.⁶ The digital ID issued by governments is frequently in the form of national biometric ID cards. The biometric ID card is physically issued and generally contains either a digitally signed Quick Response (QR) code, or a smart chip that stores the authentication data. The subsequent sections use digital ID and biometric ID interchangeably, as both indicate an end-to-end digitization of identification, verification and authentication. Figure 2 illustrates the trajectory of creating and maintaining robust ID systems. Since the national ID cards require proof of citizenship and/or residency, migrants who don't qualify as residents or lack the adequate documentation are at risk of systemic exclusion from essential services. Figure 1 outlines the four research objectives through which digital ID systems and their impact on migrants is evaluated.

Figure 1

Evaluating the impact of digital identity on increasing access to social and financial services, with a focus on their current levels of accessibility for migrants.

Objective 1: Social Inclusion

1. Examining the ability of digital ID to address logistical concerns (distance, time and financial costs) and political concerns (prejudice and marginalization) in service delivery.
2. Exploring its potential to ensure social participation and protection of all persons regardless of migration status, gender, ethnicity and nationality.

Objective 2: Financial Inclusion

1. Assessing whether unbanked persons have improved access to financial tools like Mobile Money Systems (MMS) through digital ID.
2. Analysing impact of digital ID-enabled financial inclusion on cross-border trade and economic growth, as measured by Gross Domestic Product (GDP).

Objective 3: Regional Integration

1. Examining mutual accountability and cooperation in adopting digital ID systems at a regional and continental level.
2. Highlighting the potential of regional cooperation to secure the rights of migrants through universal and inclusive foundational ID systems, data sharing and privacy.

Objective 4: Risk Mitigation

- Enumerating challenges to inclusive digital ID and strategies being adopted to facilitate security, privacy, and logistical concerns.

1. The report follows the operational definition of the United Nations, as mentioned in the Glossary (Annex II).

2. "Legal Identity," UNDP.

3. United Nations. "Global Compact for Safe, Orderly and Regular Migration." December 19, 2018.

4. International Organization for Migration. *IOM Institutional Strategy on Legal Identity*. Geneva: International Organization for Migration, 2021.

5. World Bank, *ID4D Practitioner's Guide: Version 1.0* (Washington, DC: World Bank, October 2019).

6. Joseph Atick et al., *World Development Report 2016: Digital Identity* (Washington DC: World Bank Group, 2016), 194-95.

Figure 2

Creating Robust Legal Identification Systems: A Trajectory



Authors' elaboration based on: World Bank, *ID4D Practitioner's Guide: Version 1.0* (Washington, DC: World Bank, October 2019), <https://documents1.worldbank.org/curated/en/248371559325561562/pdf/ID4D-Practitioner-s-Guide.pdf>.

Methodology and Literature Review

Given the research's key objectives, a mixed-method approach was employed. The desk-based literature review of relevant academic and gray literature, such as news articles, official government websites, and international organizations' publications was fundamental. It was limited to English, Hindi, and French sources due to internal capacity and international organizations' availability of translated gray literature. Such choice may have created limitations for our data collection and final recommendations, and possible gaps were bridged by conducting 12 in-depth semi-structured key informant interviews (KIIs) to gather qualitative data points.

Quantitative data at the aggregate level was utilized to conduct cross-country analysis. Specifically, the research incorporated World Bank data on economic growth, identity coverage, and financial inclusion, GSM Association data on the share of SIM registrations and mobile money, and data by the United Nations (Population Division) on projected identity coverage. The results from data collection and analysis are presented visually.

KIIs were carried out in collaboration with the International Organization for Migration (IOM), creating pathways and connections with relevant industry experts, regional IOM teams, and practitioners. KIIs and literature were chosen primarily from international organizations and their programs focusing on digital identity, such as the World Bank Group's Identification for Development (ID4D) program, the Global System for Mobile Communications/Groupe Spécial Mobile (GSM) Association, IOM regional officers, and AfricaNenda for frontier work and research on the issue. Academics and activists were contacted to provide critical perspectives, lending to a holistic overview of the identity space in the Global South.

The creation of questionnaires, conduction of interviews and secondary data collection follow the Geneva Graduate Institute's Research Ethics Guidelines.⁷ Specifically, interviews were recorded and anonymized (as specified by the participants) in accordance with the "do no harm approach" outlined in the IOM's Institutional Strategy on Legal Identity.⁸

In order to narrow the scope of the research given the many countries and communities comprising the Global South, proportions of the regional coverage of identity as a percentage of the global population were analyzed.⁹ Taking into account both the large populations within South Asia and Sub-Saharan Africa and their low figures of universal coverage of identity documents (56% and 24% for Sub-Saharan Africa and South Asia, respectively) – attention was directed to finding case studies from the two regions for potential interventions through good practices and risk assessments. This is further supported by similarities between the two geographical areas concerning their emerging roles in the global technological space, and newly signed bilateral trade agreements between countries such as India and Sierra Leone for open-source access and usage of Digital Public Infrastructure (DPI).¹⁰ During the literature review, it was also observed that digital identity systems in Latin America, mirrored for the most part those of Europe, and saw larger scales of implementation¹¹ – contributing only 3.9% to the world's total population without identity (See Figure 3).

Since this research focuses on the practical applications of digital ID, the short literature mentioned below focuses on case studies and best practices within the Global South – States in the region are increasingly attempting to leverage digital identity for enhanced governance, fraud prevention, development initiatives, and streamlined cross-border movements.¹² For example, digital identity adoption is mandatory for achieving universal health coverage in Ghana,¹³ similar to Nigeria's recent mandate on the National Identity Number (NIN) for essential services such as healthcare, education, and banking.¹⁴ Moreover, digital wallets empower individuals to manage their money and data flows with enhanced privacy, security, and consent, specifically for the inclusion and financial independence of migrants, refugees, and stateless individuals without paper documents.¹⁵ Shifting to digital payments, particularly mobile-to-mobile digital transactions, also lowers transaction costs for migrant remittances, in line with the 2030 Agenda's target 10. C – aiming to cut transaction costs for poverty reduction to less than 3% by 2030.¹⁶

Digital identity also facilitates cross-border movements, and the Organisation for Economic Co-operation and Development (OECD) stresses the importance of mutually recognized digital identity systems in fostering economic

7. Geneva Graduate Institute, "Research Ethics", May 9, 2023.

8. International Organization for Migration, "IOM Institutional Strategy on Legal Identity".

9. Julia Clark, Anna Metz, and Claire Casher, ID4D Global Dataset 2021: Global ID Coverage Estimates vol. 1 (Washington, DC: World Bank, 2022).

10. Nidhi Singal, "Here's How India's Digital Public Infrastructure is Going Global," *Business Today*, November 9, 2023.

11. Julian P. Cristia et al., *A Cost-Benefit Analysis of Selected Digital Projects in Latin America and the Caribbean* (Washington, DC: Inter-American Development Bank, 2022).

12. Lydia Dsane-Selby, "Effective Use of Identity Technology in Achieving Universal Health Coverage: Ghana's Case Study," (presentation, ID4Africa Annual General Meeting and Conference, May 22-25, 2023)

13. Lydia Dsane-Selby, "Effective Use of Identity Technology in Achieving Universal Health Coverage: Ghana's Case Study".

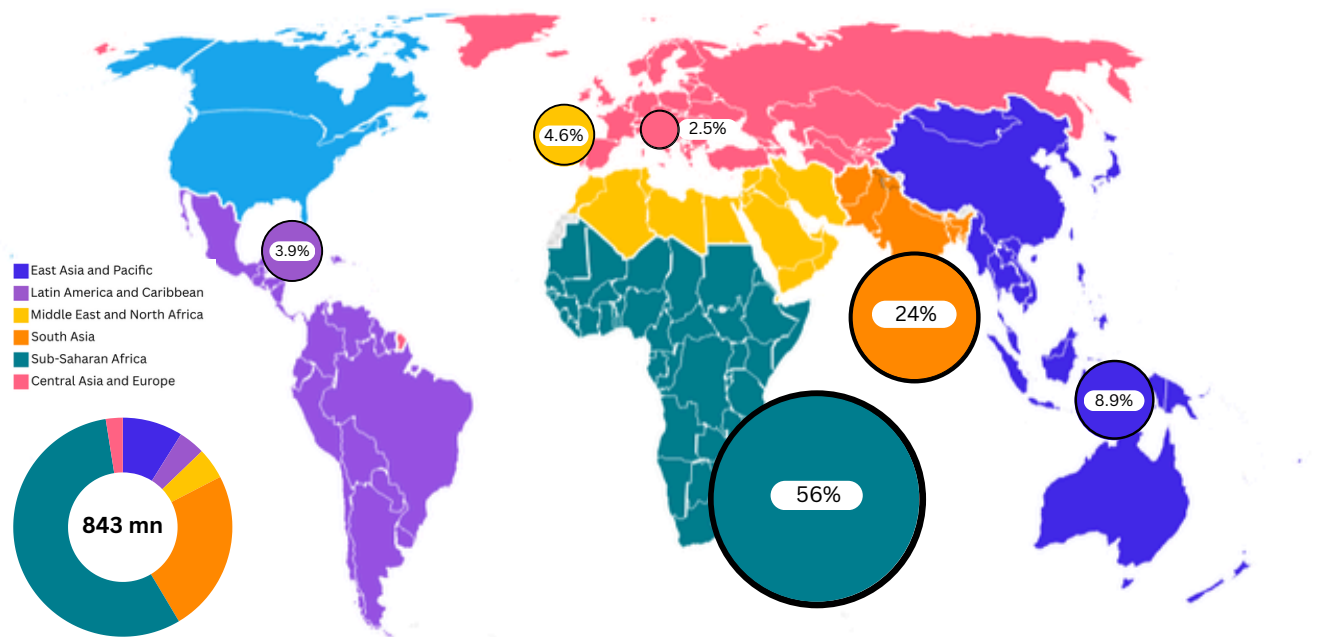
14. Osita Enwe, "Understanding the Mandatory Use of National Identification Number in Nigeria," *ResearchGate*, November 28, 2023.

15. Margie Cheesman, *Digital Wallets and Migration Policy: A Critical Intersection*, DoT.Mig In Brief paper series, June 2022.

16. Department of Economic and Social Affairs, United Nations, "Transforming Our World: The 2030 Agenda for Sustainable Development," 2015.

Figure 3

Percentage of World Population Missing Identity Documents



Authors' representation based on: Julia Clark, Anna Metz, and Claire Casher, *ID4D Global Dataset 2021: Global ID Coverage Estimates vol, 1* (Washington, DC: World Bank, 2022), <https://documents1.worldbank.org/curated/en/099705012232226786/pdf/P176341132c1ef0b21adf11abad304425ef.pdf>.

growth via regional integration.¹⁷ Additionally, Objective 3 of the IOM Strategic Plan (2024-2028) highlights the importance of legal identity in facilitating regular migration pathways to achieve safer and seamless cross-border movements.¹⁸ The Association of Southeast Asian Nations' (ASEAN) Bali process utilizes this to combat smuggling and human trafficking by enabling biometric data exchange among country law enforcement at borders, quickly verifying travelers' identities.¹⁹

The primary obstacle to the increased implementation of digital identity remains the lack of connectivity and access to technology in the Global South, specifically for women and older individuals, as displayed by a study in Uganda on the Ndaga Muntu Project.²⁰ Gelb and Clark (2013) also highlight risks with biometric technology: "failure to enroll" and inaccurate biometric identification.²¹ Lastly, the International Federation of Red Cross and Red Crescent Societies (IFRC) warns about the threat that ethnic-based persecution poses to individuals' trust towards the biometric identification process, especially in conflict settings.²²

Thus, while there is segmented literature and evidence on digital identity's effects on state processes of social inclusion, facilitating financial inclusion for marginalized groups, and migration, a holistic overview of actors, policy, and recommendations (taking privacy risks into account) is not available. This report presents itself as a guide for policymakers and IOM member states to examine the landscape of digital identity while implementing mitigation measures in order to account for many risks.

17. Organisation for Economic Cooperation and Development. "OECD Legal Instruments", March 2, 2023.

18. International Organization for Migration (IOM) (2024). IOM Strategic Plan 2024–2028. IOM, Geneva.

19. Regional Support Office. "The Bali Process on People Smuggling, Trafficking in Persons and Related Transnational Crime," The Bali Process, August 21, 2023.

20. Isabel Bosman, Digital Identification and Biometrics in East Africa: Opportunities and Concerns, SAIIA Policy Briefing No 282, November 9, 2023, South African Institute of International Affairs.

21. Alan Gelb and Julia Clark, "Identification for Development: The Biometrics Revolution," January 1, 2013.

22. Nadia Khoury, Digital Identity: Enabling Dignified Access to Humanitarian Services in Migration, (Geneva: International Federation of Red Cross and Red Crescent Societies, 2021)

Limitations of the Research

Given the scope of the research, the report focuses on use cases and best practices in regions of interest that can be globalized. The information presented on individual country cases may appear fragmented in some instances, as only selected aspects of digital ID systems were examined.

Another limitation that emerged during the research phase was the scarcity of country-level aggregate data on the implications of digital identity, which made it difficult to draw causality. It should be noted that the World Bank's ID4D program and GSM Association do provide global-level information on identity²³ and SIM cards²⁴ coverage, respectively, but the development of a central database which combines all available data on digital identity is yet to be achieved.

This challenge can be attributed to several factors, which will be examined more in-depth in the next sections of this report: firstly, the limited interoperability of systems within and across countries, which reduces the accessibility and exchange of data among institutions. Secondly, the large majority of digital ID solutions have only been developed recently and are evolving quickly,²⁵ which reflects in the absence of comprehensive analyses in secondary literature. For the present study, this meant a relatively small amount of independent authoritative sources to draw from. The lack of relevant quantitative data could only be partially compensated by KIIs, which, albeit insightful, were limited in number. Although it has been crucial for the success of the research to maximize the geographical and expertise diversity of the informants, we did not have the capacity to include the perspective of government representatives. Additionally, time and resource constraints in the face of the ambitious geographic scope of the research impeded the conduct of fieldwork. These two elements shall be included in the methodology if the research is expanded in the future.

Finally, it is important to note that many countries in the Global South have relatively new public institutions and do not have long-standing democratic traditions across their judiciary, legislative, and executive branches. These common characteristics, compounded by an often turbulent socio-political environment, negatively impact the quality and reliability of the data available at the national level. In fact, official data narratives in such contexts should be approached with a good degree of caution. This remains a significant limitation, although the chapter on risk mitigation aims to frame challenges that may emerge when implementing digital ID solutions to offset potential biases in the data utilized.

23. Julia Clark, Anna Metz, and Claire Casher, ID4D Global Dataset 2021: Global ID Coverage Estimates vol. I (Washington, DC: World Bank, 2022).

24. GSM Association, "GSMA – Mobile Network Coverage Maps"

25. World Bank, *ID4D Country Diagnostic: Nigeria* (Washington, DC: World Bank, 2016)

I. Digital ID Solutions as a Pathway to Social Inclusion

I.1 Introduction

Increasing the coverage of digital identity can enable underserved populations across the Global South, especially migrants, to enjoy their fundamental rights in host countries. These rights include the capacity to receive healthcare and education, the right to decent work, equal pay, and the ability to access social security and welfare benefits.²⁶ This chapter aims to provide an overview of how digital identity can enable social inclusion while conserving financial resources and to overcome logistical barriers. Governments can realize the potential of digital identity to advance social inclusion for all by balancing the benefits of digitalization and mitigating its risks, especially those of privacy and surveillance.

There are many examples across the Global South of countries developing digital platforms to access public infrastructure, such as healthcare and emergency support to cut per person supply-side service delivery and demand-side user logistical costs and constraints. These include Ghana's health insurance scheme, Pakistan's cashless public health provision, the United Republic of Tanzania's targeted cash transfers, and India's large-scale employment guarantee and food security acts. All of these services are facilitated through the active integration of digital identity with social inclusion processes, catered to each country's unique needs and context.

By design, digital identity verification processes decrease individuals' reliance on physical or traditional identification documents, reducing the distance and time required for individuals to access essential services.²⁷ It facilitates the quick and efficient navigation of administrative procedures by eliminating in-person appointments at traditional service centers. Digital ID solutions, such as Aadhaar in India – which is critical in the governance of over 1.4 billion people,²⁸ streamline access to services and ensure social inclusion.²⁹ Moreover, by digitizing service delivery, the Aadhaar system can prevent discrimination stemming from migration and socioeconomic status, such as caste, class, religion, or gender – thereby ensuring impartial access to services and rights.³⁰ At the same time, Common Service Centers (CSCs) provide the option of in-person assistance in accessing e-services, and seek to reduce exclusions that might be caused by digital illiteracy.³¹ While the expansion of Digital Public Infrastructure (DPI) holds significant promise for advancing social inclusion and good governance practices in the Global South, a balance is required between analog and digital options to foster truly inclusive service delivery.

I.2 India and the Role of Digital Public Infrastructure in Food Security

'India Stack' serves as the national DPI system, consisting of 3 different layers: Aadhaar (a 12-digit unique identification number), a payment system (including the Unified Payments Interface or UPI), and personal data verification (DigiLocker). Collectively, they enable digital access to a variety of public and private services.³² This DPI contributes to lowering the costs of services for all holders of digital ID, regardless of citizenship. Moreover, it extends beyond national borders, particularly to developing countries facing similar challenges related to digital identity, payments, and healthcare. Through partnerships and agreements, countries like Armenia, Sierra Leone, and Mauritius have gained access to India's DPI, enabling them to leverage these resources for their unique innovations at no cost.¹⁰

Aadhaar acts as an inclusive foundational ID system as it is not limited to citizens. Furthermore, it promotes interoperability within the federal state framework, guaranteeing that internal and international migrants may cross state borders easily, and qualify for vital social assistance programs. One of the most important features of Aadhaar is its mobility, which is facilitated by an optional nationwide digital authentication system, in addition to paper-based authentication. This is especially pertinent for the Public Distribution System (PDS), which provides subsidized or

26. World Bank, "Social Sustainability and Inclusion".

27. Prerit Rana, Chief Executive, Agrasar, interviewed by the authors, March 3, 2024. For this and all following KIs conducted by the authors mentioned across the texts, refer to Annex V.

28. Sara Hertog, Patrick Gerland, and John Wilmoth, *India Overtakes China as the World's Most Populous Country*, UN DESA Policy Brief No. 153, April 24, 2023, United Nations Department of Economic and Social Affairs.

29. Vandana, "Infrastructure issues marred Aadhaar-enabled PDS in Delhi." *The Week*, June 13, 2018.

30. Prerit Rana, Chief Executive, Agrasar, interviewed by the authors, March 3, 2024.

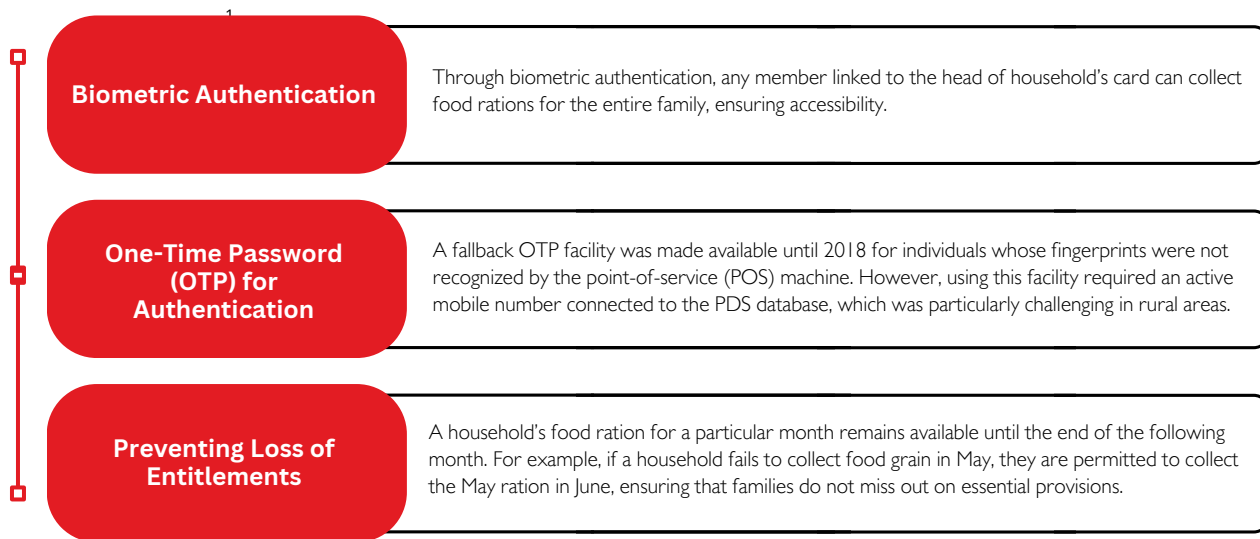
31. Karthik Muralidharan, Paul Niehaus, and Sandip Sukhtankar. 2016. "Building State Capacity: Evidence from Biometric Smartcards in India." *American Economic Review*, 106 (10).

32. "India Stack" website

free rations (food grains and other basic amenities) under the National Food Security Act. By digitizing records and enabling biometric authentication for ration distribution, Aadhaar has reduced leakage and ensured targeted delivery of food subsidies to eligible beneficiaries. It also allows the de-duplication of records within government databases, by centralizing identity information to enhance the efficiency of welfare processes. These solutions could reduce administrative burdens and minimize the risk of fraud or identity theft.³³ However, the mandatory linking of PDS to Aadhaar cards has raised concerns about social exclusion for those lacking IDs, and data surveillance.

Figure 4

Precautions to Ensure Efficient Access To PDS Through Aadhar in India



It is necessary to note that failures to authenticate or the need for repeated authentication can also arise owing to erased fingerprints in old age resulting in authentications only working for certain younger members of the family. This is problematic for migrant households, where younger family members who have moved away from home need to travel back every month to collect the entire family's ration. Older cardholders and those without families depend on the goodwill of the Fair Price Shop (FPS) owner to receive their monthly ration.^{34,35} It is crucial to examine the contextual factors that may exacerbate existing inequalities and exclusions. This, along with other structural challenges stemming from failures in the infrastructure, will be elaborated on further in the risk and mitigation part of this report.

Box 1

Social Inclusion Through Digital Identity: Focus on Gender

The report findings highlight that across contexts women tend to be at the forefront of dealing with bureaucracy to provide for the nutritional, educational and health needs of the family.³⁶ Simultaneously, there is inequality in the share of women who have registered ID in their name, and household ration cards, compared to men.

This multiplies their burden, as on the one hand they are culturally mandated to undertake such caregiving activities, while also being reliant on the male members of their household.³⁰ Bridging the gender gap in identity coverage can ensure that women may exercise their rights to services and movement independently.

30. Prerit Rana, Chief Executive, Agrasar, interviewed by the authors, March 3, 2024.

36. Hans Ekbrand and Björn Halleröd, "The More Gender Equity, the Less Child Poverty? A Multilevel Analysis of Malnutrition and Health Deprivation in 49 Low- and Middle-Income Countries," *World Development* 108 (2018): 221-230.

33. N.M., Consultant, World Bank Group, interviewed by the authors, March 20, 2024.

34. Ibid.

35. Bidisha Chaudhuri, "Distant, Opaque and Seamful: Seeing the State through the Workings of Aadhaar in India," *Information Technology for Development* 27, 1 (2021): 37-49.

Social Inclusion Through Digital Identity: Focus on Migration

The “One Nation One Ration Card” (ONORC) scheme, launched in 2019, allows all beneficiaries to withdraw their share of rations from any Fair Price Shop (FPS) across the country.³⁰ Through Aadhaar-based authentication, ONORC prevents the leakage of resources while accommodating the needs of migrant households who need not reregister their eligibility.³⁷

Importantly, for split households, each family member can withdraw their share of the rations without needing separate cards.

30. Prerit Rana, Chief Executive, Agrasar, interviewed by the authors, March 3, 2024.

37. Dalberg, *Fulfilling the Promise of One Nation One Ration Card: A Frontline Perspective from 5 Indian States*, April 2022.

1.3 Digitizing to Achieve Universal Healthcare Coverage in Ghana

Ghana introduced the GhanaCard, its national digital ID, in 2017. It is required for both citizens and legal residents to access social and financial services. By combining several useful IDs into one, this project seeks to expedite identification procedures. It is intended to be integrated with current cards, such as the National Health Insurance Scheme (NHIS) Card. In this way, Ghanaian authorities hope to improve service delivery, efficiency, and guarantee inclusion for residents and migrants in the national financial and social institutions.³⁸

The National Health Insurance Act, 2012, outlines the objective of providing universal health coverage to all persons within the territory.³⁹ The mandatory NHIS seeks to ensure affordable access to healthcare, through registration with a licensed private health insurance scheme; district mutual health insurance scheme, or a non-profit community-based scheme. NHIS subscribers are broadly categorized under exempt or informal groups, where only the latter are required to pay the premium.⁴⁰ As per 2021 data, 64.9% of beneficiaries fall under the exempt group.⁴¹

However, NHIS has faced several challenges, including issues with identity fraud, and instances where individuals were charged for services that were never provided. There is also a growing reluctance among healthcare providers to accept the NHIS due to its increasing debt and inability to reimburse them on time.⁴² Further, although enrollment is mandatory, only approximately 54% of the population is covered – attributed to difficulties in incentivizing registration.⁴³ By creating the myNHIS app and linking its biometric verification to the GhanaCard, Ghana seeks to bring transparency to the healthcare system and increase coverage, adding to the number of premium-paying subscribers. These measures signal an improvement in addressing the previously mentioned challenges. Specifically, the scheme has reduced the logistical burdens associated with NHIS card enrollment and renewal by enabling remote processes, both for individuals and groups, at no additional cost.

Additionally, it facilitates registration using foreign phone numbers, ensuring that relatives abroad can easily register their family members in Ghana. Service providers are able to verify the identity of clients through either fingerprint verification, or through OTP. It seeks to utilize the trusted infrastructure of the GhanaCard, instead of relying on the biometric-enabled, yet less secure NHIS card. This strategic measure not only guarantees effective verification procedures but also improves overall data security and integrity, in line with Ghana’s commitment to protecting the private information of its people and residents. Consequently, the NHI Authority reported 75.96% of new registrations through the app. It attributes the rise to an increase in accessibility, especially for civil servants and daily-wage workers who are unable to take out time for in-person enrollment.⁴⁴ Lastly, the availability of medicine price lists and locations of healthcare providers seeks to control rising drug costs, and improve service delivery. In February 2024, the mandatory Non-Resident Visitors Health Insurance Policy was launched to include migrants whose stay in Ghana is under six months in a period of twelve months. Its linkages to identity documents and accessibility using digital ID are yet to be clarified.⁴⁵

38. Abdul K. Naatogmah, “NHI Intensifies NHIS and Ghana Cards Linkage,” National Health Insurance Scheme

39. Ghana National Health Insurance Authority, “National Health Insurance Act, 2012 (Act 852)”.

40. UN Economic and Social Commission for Asia and the Pacific, Social Development Division, “Ghana’s National Health Insurance Scheme,” Social Protection Toolbox.

41. Social Protection, “Ghana’s National Health Insurance Scheme: Fee Exemptions.”

42. Africa Digital Rights’ Hub LBG, Ghana’s Identity Ecosystem, (Accra, Ghana: Africa Digital Rights’ Hub Publishing, 2020).

43. Lydia Dsane-Selby, “Ghana’s National Health Insurance Scheme,” (presentation, ID4Africa 2023).

44. Lydia Dsane-Selby, “Ghana’s National Health Insurance Scheme”.

45. Muniratu Akweley Issah, “Ministry of Health, Partners Launch Non-Resident Visitors Health Insurance Policy,” Ghana News Agency, February 10, 2024.

2. Digital ID as Fuel for Financial Inclusion

2.1 Introduction

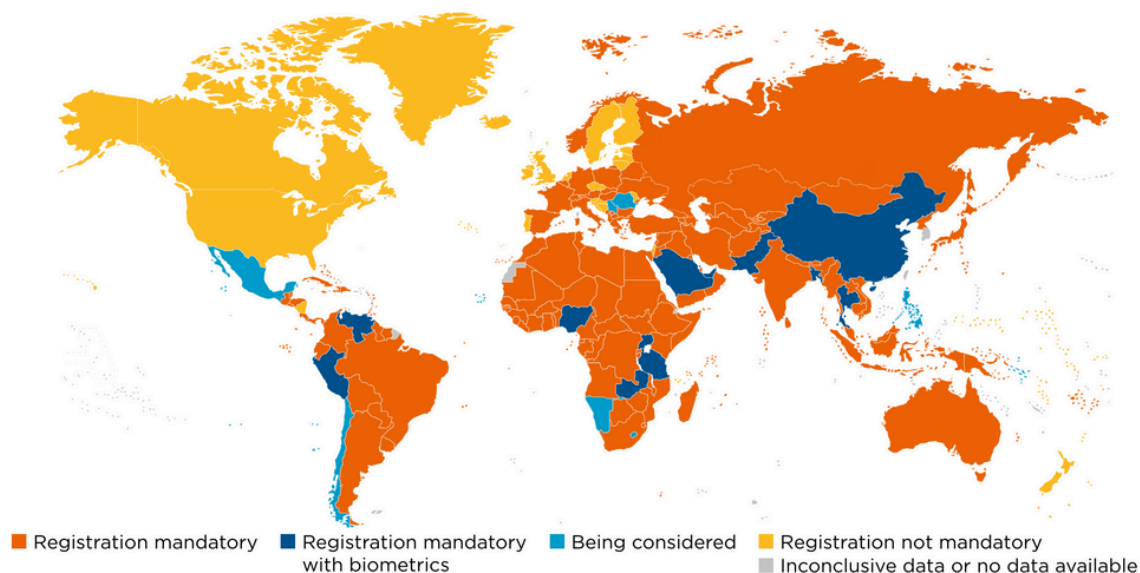
As countries in the Global South increasingly begin to adopt a 'digital transformation' of their economies, national identity authorities should play a critical role in providing access to these new digital economic systems. Traditionally, microfinance institutions (MFIs) led the revolution in increasing service to large populations for their financial credit and saving needs. These institutions are now being substituted by disruptive innovations in financial technologies accessible on one's mobile phone. Mobile Money Systems (MMS) are the dominant model adopted, including Instant Payment Systems (IPS).⁴⁶ A mobile phone can also be the primary source by which one accesses and utilizes digital identity, requiring the use of a SIM connection. In turn, given that a digital identity is also progressively becoming a prerequisite for accessing mobile services (through Pay-As-You-Go SIM cards), having inclusive identity systems only adds to the accessibility of financial and digital services.

Across 157 countries in the world (a majority of those in the Global South, see Figure 5), registration of identity is mandatory in order to access a working SIM through some form of Know Your Customer (KYC) process – forming an indisputable link between identity, and mobile phone services.⁴⁷ Research by the Global System for Mobile Communications' Association (GSMA) shows that having an official ID is a strong and highly significant predictor of access to mobile services in one's own name.

Once an individual has access to a SIM card registered to their name, access to services through MMS providers varies across countries. In the example of M-Pesa for East Africa, any form of identity proof can be presented to local agents of Safaricom (a Kenyan mobile network operator, or MNO) for opening a new wallet or account, which is verified either in-person by the company's agents or online. These relatively flexible KYC regulations are considered a product of the COVID-19 pandemic, and a push by 37 countries to facilitate digital and financial inclusion, especially when restricted by physical movement.⁴⁸

Figure 5

Global SIM Registration Status



Source for graph: GSM Association, *Access to Mobile Services and Proof of Identity: Solutions and Impact*, (GSMA: 2021), https://www.gsma.com/solutions-and-impact/connectivity-for-good/mobile-for-development/wp-content/uploads/2021/04/Digital-Identity-Access-to-Mobile-Services-and-Proof-of-Identity-2021_SPREADs.pdf.

46. Désiré Avom, Hermann Ndoya, and Chrysost Bangaké, "Do Financial Innovations Improve Financial Inclusion? Evidence from Mobile Money Adoption in Africa," *Technological Forecasting and Social Change* 190 (May 2023).

47. GSM Association, *Access to Mobile Services and Proof of Identity: Solutions and Impact*, (GSMA: 2021).

48. GSM Association, *Access to Mobile Services and Proof of Identity*.

Therefore, for underserved populations in regions with little to no connectivity or lack of agents to verify identity documents in person, using digital ID to set up an IPS service becomes a necessity and can often be the only option for financial inclusion.⁴⁹ An estimated 456 million individuals across 90 countries (primarily in Africa) are simultaneously at risk of being excluded from MMS due to their inability to meet the necessary KYC requirements of opening mobile money accounts in their own names.⁵⁰ This highlights a significant gap in how identity authorities, central banks and telecommunications companies are regulating the growing market in the Global South without consistent and proportional identity-related policies.

Digital financial inclusion is also advertised to benefit groups otherwise marginalized by the traditional banking sector, such as women and migrants.⁵¹ For example, Mobile Money Providers (MMPs) tracking disaggregated data found a 98% increase in the cumulative number of unique female customers saving via mobile money between September 2022 and June 2023.⁵² Out of the 173 countries hosting more than 280 million migrants worldwide, 75% legally require identity documents specific to the host country to first access a SIM card – which are not available in most cases. The International Fund for Agricultural Development (IFAD) and the World Bank also noted that, in many countries, undocumented migrants cannot open bank accounts, resulting in the adoption of risky and unregulated channels for communication and MMS.⁵³

2.2 Economic Effects of Financial Inclusion by Digital ID

Inclusive and instant digital payment systems can also form the foundation for a country's Digital Public Infrastructure (DPI) and have significant systemic effects, especially when considering the unique case of Africa.⁵⁴ e-KYC services through digital identity have the potential not only to expand financial inclusion in the often resource-limited Global South, but also a country's economy through multiple means.

Beyond individual impacts, mobile money facilitated through digital identification benefits business environments. Quelita Gonçalves, Head of Office IOM Cabo Verde, describes the connection: *"If you're going to invest, they first thing they [banks] ask you for is ID, but if it's not digital ID, it's much harder to prove that you are you and they can easily halt the process if they have doubts."* As uptake of mobile money services increases, there is also an increase in overall ecosystem transactions, such as international remittances, merchant payments, and bulk payments in the form of stronger network effects.⁵⁵

Services such as M-Pesa, MoMo, and PayTM, are experiencing one of the fastest diffusions ever recorded – and are coming to dominate the methods by which payments are being made within and to countries outside the Global South. As per 2023 data from GSMA, there are 1.75 billion mobile money service accounts registered globally, 48% of which are in Sub-Saharan Africa alone. The area is also boosting large transactional values, more than four times its next-closest market of South Asia, and a general trend of increasing transaction values correlated to increasing transaction volumes. For example, in 2022, Nigeria mobile money (or NIP) and eNaira (Central Bank of Nigeria's digital currency) were collectively 186% of the country's domestic IPS transaction values relative to the Gross National Income (GNI).⁵⁶

On a global scale, between 2013 and 2022, a 10-percentage point rise in mobile money adoption was found to increase Gross Domestic Product (GDP) by 0.4% - 1.0% – this implies that within countries having active mobile money adoption, GDPs were higher by USD 600 billion, or 1.5%, as compared to GDPs without mobile money availability in the country. In Eastern and Western Africa (where mobile money adoption is highest), GDP increased by USD 60 billion and 70 billion (or 5.9% and 4.1%) respectively, truly displaying the success story that it has been for Africa.⁵⁷ Therefore, a larger trend is observed in the increased usage of SIMs and MMSs, having a substantial impact on national and regional economies.

49. J.N., Graduate Institute Student and Kenyan citizen, interviewed by the authors, March 22, 2024.

50. World Bank Group, *The Global Findex Database 2021: Financial Inclusion, Digital Payments, and Resilience in the Age of COVID-19* (Washington, DC: World Bank Group, 2022).

51. Dr Serena Natile, Associate Professor at University of Warwick, interviewed by the authors, March 21, 2024.

52. Ashley. O. Onyango, "Maturing Global Mobile Money Market Hits \$1.4tn in Transaction Value," *GSMA*, March 19, 2024.

53. International Fund for Agricultural Development and World Bank, *The Use of Remittances and Financial Inclusion* (Rome: IFAD, 2015).

54. Sabine Mensah, Zachary Kazzaz and Jacqueline Jumah, *State of Inclusive Payments in Africa 2023* (Africa Nenda-ECA-World Bank Group, 2023).

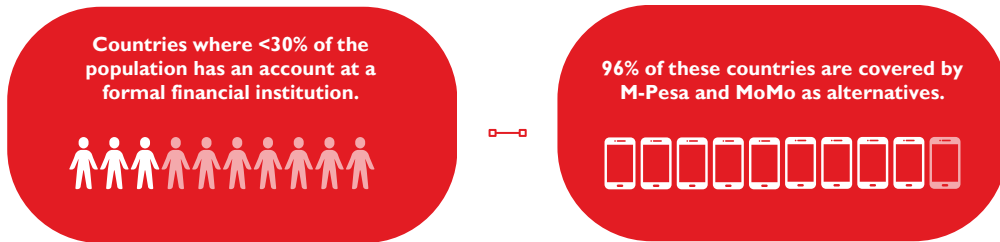
55. Rishi Raithatha and Gianluca Storchi, *State of the Industry Report on Mobile Money 2024* (GSMA, 2024).

56. Sabine Mensah, Zachary Kazzaz and Jacqueline Jumah, *State of Inclusive Payments in Africa 2023*.

57. Vera Songwe, "A Digital Africa," *Finance & Development*, International Monetary Fund, June 2019.

MMS as “Pathways to Financial Services”: M-Pesa and MoMo

Services such as MoMo (a product of South African mobile network operator, MTN group) and M-Pesa (a product of Kenyan operator Safaricom), are available in 96% of countries where less than one-third of the population has an account at a formal financial institution. These provide individuals with convenient access to a wide range of financial services beyond IPS, such as safe and private storage bearing interest, and low-cost deposit and withdrawal of funds (from cash to digital accounts).

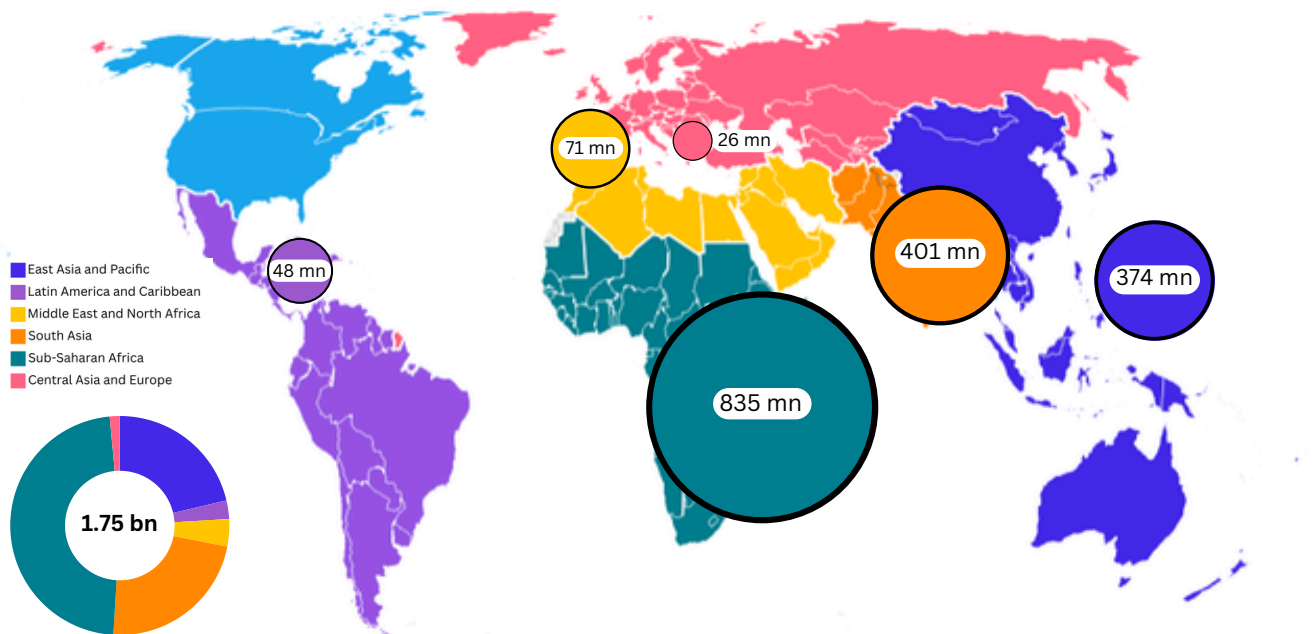


MoMo has also been described as a “pathway” to formal financial sector services through a mobile phone,⁴⁶ such as credit extensions to invest in livelihoods and insurance products to reduce risk. In 2017, Kenya launched M-Akiba, a government bond sold exclusively via mobile money, for as little as K Sh 3,000 (or US \$30).

46. Désiré Avom, Hermann Ndoya, and Chrysost Bangaké, “Do Financial Innovations Improve Financial Inclusion? Evidence from Mobile Money Adoption in Africa,” *Technological Forecasting and Social Change* 190 (May 2023).

Figure 6

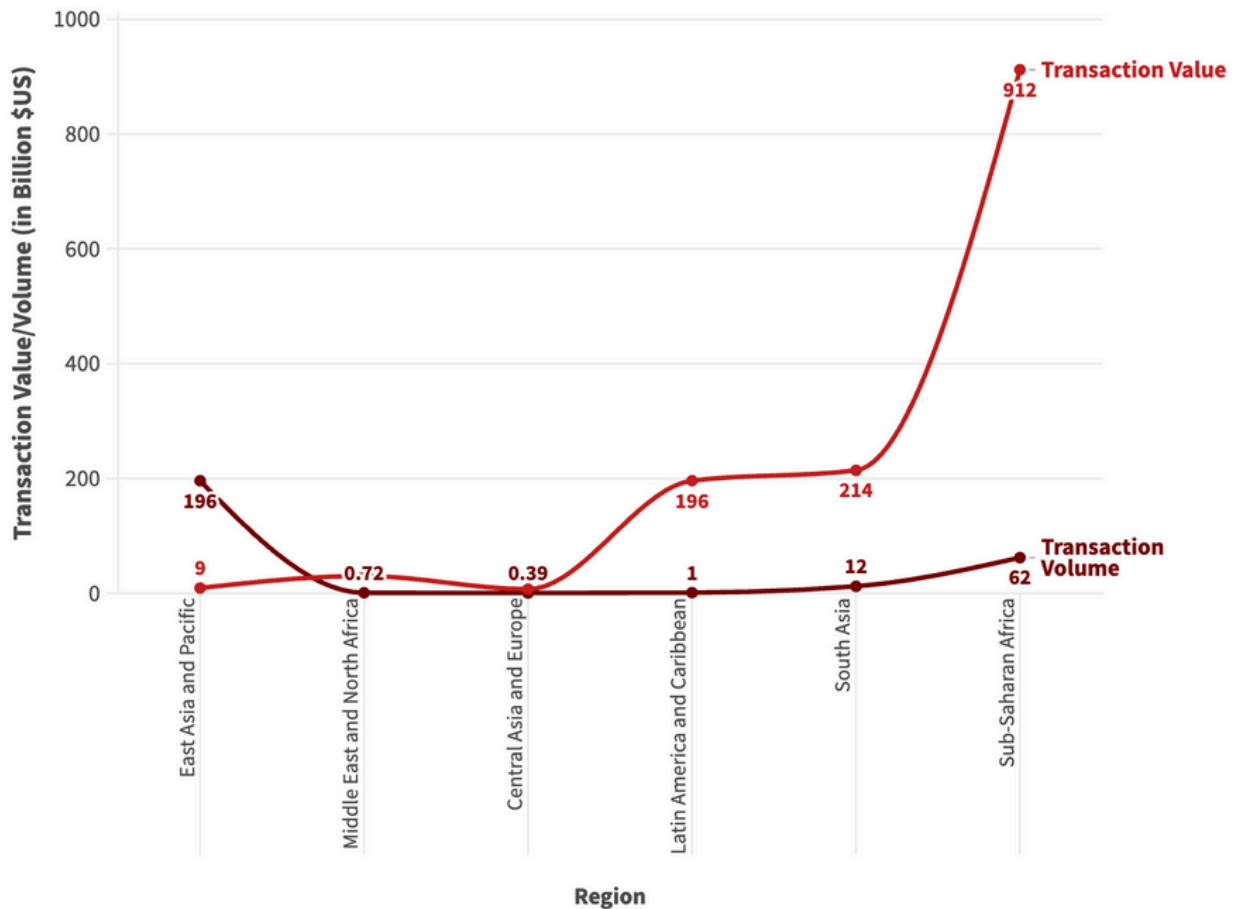
Mobile Money Account Registration Status Globally



Authors’ representation based on data from: Rishi Raithatha and Gianluca Storchi, *State of the Industry Report on Mobile Money 2024* (GSMA, 2024), <https://www.gsma.com/sotir/>

Figure 7

Transactions Made Using Mobile Money Services



Authors' representation based on data from: Rishi Raithatha and Gianluca Storchi, *State of the Industry Report on Mobile Money 2024* (GSMA, 2024), <https://www.gsma.com/sotir/>.

2.3 Good practices for financial inclusion through Digital ID

2.3.1 India's UPI and The Role of Aadhaar in Opening 500 Million Bank Accounts

In 2022, Indian DPI generated USD 31.8 billion or added 0.9% to India's GDP.⁵⁸ Unified Payments Interface (UPI) is a component of India Stack and facilitates digital paperless financial transactions – with 9.41 billion transactions worth USD 181 billion processed in May 2023 alone, or approximately 3,600 transactions per second, a 58% year-on-year increase. As per Applied Communications Inc. (ACI) Worldwide in 2022, India leads globally in terms of real-time payment transactions with 48.6 billion transactions or 40% of all transactions processed in 2021.⁵⁹ Digital payments through the UPI interface are now pervasive in the economy, accounting for 68% of all transaction payments by volume.⁶⁰ Take-up rates were also supported by the government through a two-pronged approach, where UPI poses innovative interoperability for the entrepreneurial fin-tech market,⁶¹ while simultaneously using Aadhaar to provide social welfare benefits to increase overall usage.

However, before hailing this as a one-stop-shop solution, one must also take into account the “carrot and stick” approach used by the government of India to significantly expand the adoption of both UPI and digital identity – by conditioning social welfare provision to an individual's Aadhaar card.⁶³ Overall, while India may be a success story,

58. Nasscom, “Nasscom – Arthur D Little India's Digital Public Infrastructure – Accelerating India's Digital Inclusion,” Nasscom, February 2024.

59. Chirag Chopra and Piyush Gupta, “India's Unified Payment Interface's Impact on the Financial Landscape,” *World Economic Forum*, June 26, 2023.

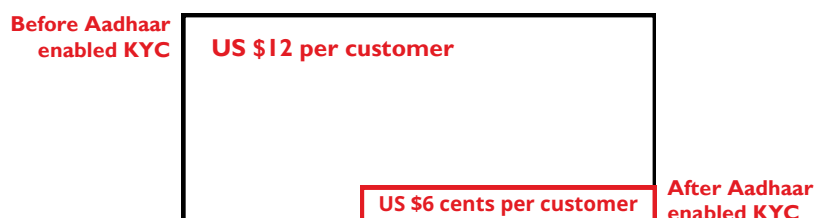
60. Cristian Alonso et al., *Stacking Up the Benefits: Lessons from India's Digital Journey*, *International Monetary Fund*, 2023.

61. As a 5-party system – the central switch, a bank and payment system provider (PSP) for the remitter and the beneficiary, UPI allows the use of Application Programming Interface, or APIs to be incorporated into new financial tools by emerging private entrepreneurs.

63. Yiannis Theodorou, Senior Advisor and Global Lead-Digital Identity, Tony Blair Institute, interviewed by the authors, April 19, 2024.

Investing in Aadhaar and Digitization for Long-Run Economic Gains

Besides contributing to the economy in the form of monetary transactions, the digitization of the KYC procedure has lowered banks' compliance costs by 99.5%, increasing coverage of lower income, and traditionally marginalized customers.



462.5+ Million⁶⁰

bank accounts opened by August 2022, specifically by rural women.

330+ Million⁶⁰

used Aadhar as their primary (and first) means of identification for account opening.

80% of adults⁶²

in India had a bank account in 2017, accelerating progress by 47 years.

USD \$1 Billion

of initial investment for creating Aadhar (large scale enrollments).

USD \$1 per person

to enroll, provided free of cost to all (citizenship not necessary).

1.1% GDP saved

in expenditure due to DPI 'till March 2021.

60. Cristian Alonso et al., *Stacking Up the Benefits: Lessons from India's Digital Journey*, *International Monetary Fund*, 2023.

62. Derryl D'Silva, et al., "The Design of Digital Financial Infrastructure: Lessons from India," BIS Paper No. 106, December 15, 2019, *Social Science Research Network*, <https://ssrn.com/abstract=3505373>.

there remain significant challenges in near-universal applicability that appear along the lines of gender, geography and income, and including but not limited to one's identity as a migrant or non-citizen resident. Since India's census is the major source of data on migration across the subcontinent, these discriminatory lines are further exacerbated by the lack of census data in the country, which was due in 2021 and has not been conducted since 2011. From the data available, it is found that only 14.9% of rural households have internet access, women among low-income groups are digitally illiterate, and a fifth of the overall population still remains unbanked. Comprehensive data protection legislation that prioritizes the user is also missing in India, an issue which is expanded upon further in the risks and mitigation portion of this report.

2.3.2 Nigeria's Payment Service Bank (PSB): Tiered Identification and a New Banking License Category

Nigeria's ambitious National Financial Inclusion Strategy (NFIS) seeks to provide 75% of its adult population⁶⁶ with access to "at least one financial product and/or service from a regulated financial service provider" by 2024.⁶⁷ While the 2020 goal for 70% inclusion could not be achieved and fell short at 51%⁶⁸ (compared to 36.3% adults in 2010), the Central Bank of Nigeria (CBN) has projected that there is potential for this to be achieved given the thriving financial technology sector in the country. Thus, CBN launched a new license category called Payment Services Bank (PSB) based on the system utilized in India. Telecommunication providers, banking agents, retail providers, and MMOs were eligible to apply for the license in order to encourage low-value but high-volume transactions in rural areas through a combination of in-person and online channels.

64. Pranati Datta, *Indian Census Data on Migration*, *The Oriental Anthropologist* 13, no. 1 (2013): 17.

65. Cristian Alonso et al., *Stacking Up the Benefits: Lessons from India's Digital Journey*.

66. While the NFIS does not specify what constitutes the broader category of "adults" (such as migrants vis-a-vis citizens), they do mention the target groups of women, youth, rural, and Northern Nigerians along with MSMEs as a part of their strategic priorities.

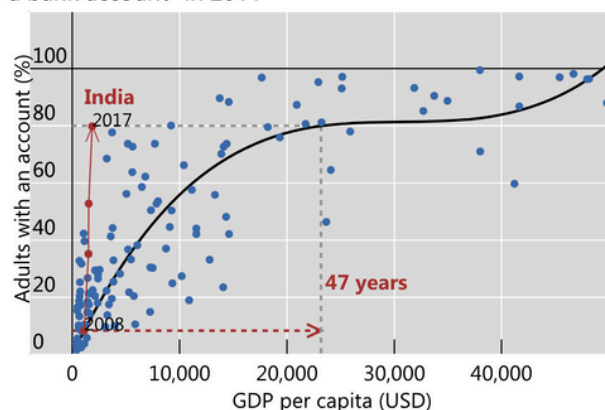
67. Central Bank of Nigeria, *Nigeria National Financial Inclusion Strategy*, November 2022.

68. EFINA, "Access to Financial Services in Nigeria 2023 Survey."

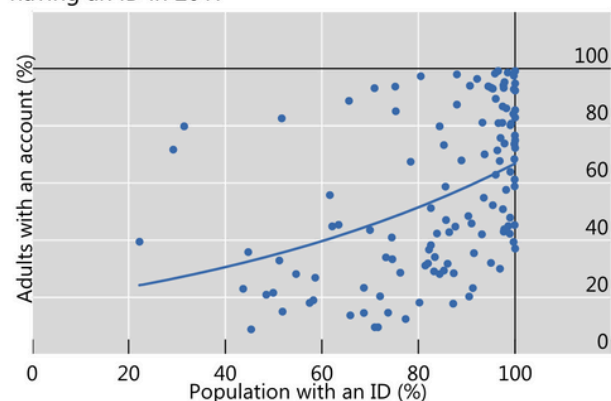
Figure 8

Leapfrogging Traditional Development Processes with Aadhaar

Positive relation between GDP per capita and adults with a bank account¹ in 2011



Positive relation between having a bank account¹ and having an ID in 2017²



Source for graph: D'Silva, Derryl and Filková, Zuzana and Packer, Frank and Tiwari, Siddharth, *The Design of Digital Financial Infrastructure: Lessons from India* (December 15, 2019). BIS Paper No. 106, Available at SSRN: <https://ssrn.com/abstract=3505373>.

Although this innovative step occurred before the revision of Nigeria's NFIS in 2022, progress towards inclusion was slow, attributed to demand and supply side barriers such as high transaction fees, and the allowance of narrow service offerings for customers by the CBN. This was combined with common socioeconomic factors preventing financial inclusion in the Global South – such as the high cost of banking charges vis-a-vis individual income (given that 40% of the Nigerian population have incomes below the poverty line),⁶⁹ and the extensive ID requirements for opening bank accounts that groups such as migrants cannot meet. However, by introducing PSBs into the financial system, Nigeria recognised the power of adopting a contrasting approach to the rest of its neighbors, one that is led by banks and other operators versus by MMO and MNOs alone.

Given the lack of identification documents and bureaucratic hurdles that unbanked populations have to face in the Global South, a new tiered KYC system enabled by Nigeria's National Identification Number (NIN) may be a solution to jump-start this process. As of 2023, 104 million Nigerians have been issued with NINs, a series of 11 randomly assigned numbers attributed to an individual's biometric information such as fingerprints, facial features, and digital signature.⁷⁰ This allows for PSBs to significantly expand financial services, through flexible KYC regulations that differ at 3 stages for individuals, both based on increasing levels of security provided by additional identity information and the establishment of the Regulatory Framework for Open Banking (by creating a central and shareable credit-scoring system).⁷¹

With a 13% increase in digital payments in Nigeria between 2018 and 2020, GSMA believes that the potential for PSBs to collaborate with traditional banks to further the provision of financial services such as loans and credit cards (which PSB operators are prohibited from offering as of now) without taking on firm or systemic heavy risks is integral in meeting a critical financial need for Nigeria.⁷² PSBs would be able to offer competitive cost-advantages for customers excluded from traditional banking through a digital-first approach – especially quick, easy and remote onboarding processes for new customers, such as using mobile phone numbers as account numbers. The CBN's new e-ID card for integrated financial services, digital identity, access to e-Naira as a fiat currency, and open banking Applied Programming Interfaces (APIs) are all emerging opportunities to accelerate financial inclusion in Nigeria.

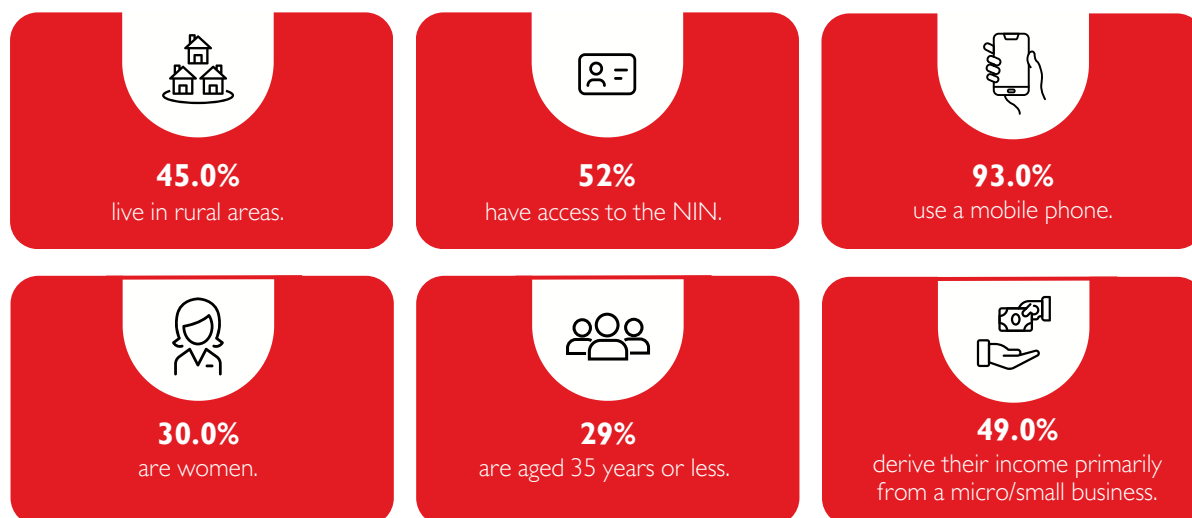
69. International Labour Organization, *Terms of Reference: A Rapid Diagnostics Assessing the Impact of COVID-19 on Enterprises and Workers in the Informal Economy in Nigeria*, 2020.

70. National Identity Management Commission, "About the NIN."

71. Central Bank of Nigeria, *Supervisory Framework for Payment Service Banks* (CBN, July 2021).

72. Kenechi Okeleke and Nigham Shahid, *Payment Service Banks in Nigeria: Opportunities and Challenges* (GSMA, April 2022).

Financial Exclusion of 34 Million Adults in Nigeria: Social and Economic Factors



Authors' representation based on data from: EFInA, "Access to Financial Services in Nigeria 2023 Survey."
<https://efina.org/ng/our-work/research/access/>.

2.4 Digital ID Solutions for Cross-Border Mobility and Trade

2.4.1 Cross-Border Trade in the COMESA Region

The Common Market for Eastern and Southern African (COMESA) Business Council (CBC) has recently piloted its 'Prepaid Cards Program' as a potential solution for an integrated, low-cost, interoperable, and fraud-resistant digital payments platform serving Micro, Small and Medium Enterprises (MSMEs) engaging in cross border trade (CBT).⁷³ In several countries, against a glowing backdrop of the African MMS revolution, there remains a lack of designated low-cost payment services for CBT and money transfers through banks or operators that can be expensive for MSMEs, given that 77% of these enterprises are micro in nature.⁷⁴ These enterprises report mainly trading in agricultural produce, textiles and fast-moving consumable goods, with only half being engaged in forms of e-commerce, even though daily internet usage is a common occurrence among MSMEs. This is a significant block, given that MSMEs form the backbone of economic development in the region by making up more than 90% of the private sector and 50% of employment – thus contributing significantly to country GDPs.⁷⁵ The CBT conducted by these traders is not just large in terms of volume of transactions (30-40% of intra-African trade in Southern African Development Community, or SADC is informal), with a median value of USD 1344 per transaction, but also significantly increases the number of times traders cross national borders.⁷⁶

Past solutions such as the Regional Payment and Settlement System (RPSS) exhibited limited uptake for cross-border bank payments, for a total value of USD 208 million in 2020.⁷⁷ There is also a low uptake of formal insurance products by traders for goods in transit, or their vehicles – a gap that MMS can fill. MMOs are now also increasingly offering cross border payments, especially when they operate in more than two countries, such as M-Pesa, Airtel Money, and MTN Money, among others (refer to Figure 10 for a full list). These are being identified as alternative channels for those traditionally unbanked – as reported at the Kenyan and Ugandan border, where customers and MSMEs sign up for mobile coverage with multiple providers at border towns to ensure they can make payments within mobile money networks.⁷⁸

73. Marianne Nzioki, "Empowering Cross-Border Trade: COMESA's Prepaid Cards Program and Regional Payments Platform Proof of Concept Kickoff," COMESA Business Council, September 26, 2023.

74. Sabine Mensah, Jacqueline Jumah and Zachary Kazzaz, "Use of Cross-Border Digital Payments in the COMESA Region," AfricaNenda, COMESA Business Council, and United Nations Economic Commission for Africa, 2022.

75. World Bank Group, "World Bank SME Finance," October 16, 2019.

76. Eldrede Kahiya and Djavorbek Kadirov, "Informal Cross Border Trade as a Substratum Marketing System: A Review and Conceptual Framework," *Journal of Macromarketing* 40, 1

77. COMESA, *Common Market for Eastern and Southern Africa: Annual Report, 2020*

78. Sabine Mensah, Jacqueline Jumah and Zachary Kazzaz, "Use of Cross-Border Digital Payments in the COMESA Region".

Figure 9

Flexible “Staged” KYC Regulations Under PSB in Nigeria

	KYC Requirements	Maximum Single Deposit	Maximum Cumulative Balance	Minimum Account Balance to Open	Withdrawal of Money
Tier 1	<ul style="list-style-type: none"> Basic customer information (name, date and place of birth, passport photo, gender, address, phone number, etc.). Basic information sent electronically or submitted on-site at a bank branch or agent location. Evidence or verification of information provided by a customer are not required. 	NGN 50,000 at any time.	NGN 300,000 at any time.	No minimum amount required.	<ul style="list-style-type: none"> Deposits may be made by account holder and 3rd parties while withdrawal is restricted to account holder only. Limited ATM transactions are allowed. No international transfers.
Tier 2	<ul style="list-style-type: none"> Evidence of basic customer information is required, documents sent electronically or submitted on-site. Basic customer information must match official databases, such as NIMC, INEC Voters Register or FRSC. 	NGN 200,000 at any time.	NGN 500,000 at any time.	No minimum amount required.	<ul style="list-style-type: none"> Accounts cover Mobile Banking products (issued in accordance with the CBN Regulatory Framework for Mobile Payments Services). Withdrawal denied if cross-checking of identification is not completed at the point of account opening.
Tier 3	PSBs to obtain, verify and maintain copies of all required documents for opening of accounts in compliance with the CBN's KYC requirements.	NGN 5,000,000 at any time.	No limit.	No minimum amount required.	International transfers allowed.

Authors' representation based on data from: Central Bank of Nigeria, Supervisory Framework for Payment Service Banks (CBN, July 2021), <https://www.cbn.gov.ng/out/2021/ccd/supervisory%20framework%20for%20psbs.pdf>.

Despite continued efforts to mitigate these trade issues through free-movement policy and trade regimes, the lack of infrastructure to support 'one-stop border posts' remains, including threats to women traders' safety.⁷⁹ Interoperable digital identity solutions for travel (along with easy biometric identification for quick immigration), and MMSs for CBT that work domestically and at all borders in the region that are facilitated through these KYC protocols could thus be key to unlocking the economic potential of these trade-flows in the COMESA region.⁸⁰

Figure 10

Mobile Money Options and Cross-Border Payments

Country Sent From	Mobile Money Service	Allows Cross-Border Payments To	Transaction Limit
Kenya	M-Pesa	Rwanda (MTN), Tanzania (Vodacom) and Uganda (MTN)	KES 70,000 (US \$540)
Kenya	Airtel Money	Malawi, Rwanda, Zambia (Airtel)	KES 70,000 (US \$540)
Kenya	Airtel Money	Zambia, Rwanda, Tanzania and Nigeria (Airtel)	MWK 750,000 (US \$435)
Rwanda	Tigo Cash/Airtel Money	Tanzania and DRC (Airtel)	RWF 500,000 (US \$388)
Rwanda	MTN Mobile Money	Uganda, Kenya, Tanzania and Zambia (MTN)	RWF 2,000,000 (US \$1553)
Tanzania	M-Pesa	Kenya, Uganda (MTN), Rwanda (MTN) and Zambia (MTN)	KES 70,000 (US \$540)
Tanzania	Tigo Pesa	Rwanda (MTN and Airtel), Uganda (MTN and Airtel), Kenya (M-Pesa)	TZS 3,000,000 (US \$1162)
Uganda	MTN Mobile Money	Kenya (M-Pesa) and Rwanda (MTN)	UGX 7,000,000 (US \$1867)
Uganda	Airtel Money	Kenya, Rwanda, Malawi, Zambia (Airtel)	UGX 5,000,000 (US \$1333)
Zambia	MTN Mobile Money	Rwanda (MTN)	ZMW 20,000 (US \$788)
Zambia	Airtel Money	International Airtel Numbers	ZMW 10,000 (US \$395)

Source: Individual provider websites.

2.4.2 Women Traders and the Potential Benefits of MMS

It is equally important to gender these benefits, as in the case of Sub-Saharan Africa, where the gender gap between women and men having mobile money accounts at 6% is smaller than the gap of 12% between traditional financial institution account ownership.⁸¹ Further, 17% of female respondents cited a lack of documentation as the primary barrier to opening a mobile money account, as compared to 11% by men.⁸² Women also make up the majority of MSMEs involved in CBT, particularly at the micro and informal level, out of which only very few have not gone to school.⁸³ Access to basic literacy and elements of financial literacy can therefore be ruled out as a contributing factor to (the lack of) MMS use.

Most MSMEs in the COMESA region are formally registered with the registrar of companies, but primarily engage in informal cross-border trade, without declaring all goods to customs officials. It is here that a high preference for liquid cash can be found among women, especially in view of the limited number of low-cost digital payment services for cross-border transactions in the region.⁸⁴ However, the use of MMS for cross-border transactions, especially for women entrepreneurs in regional blocs such as ECOWAS, brings substantial advantages, as presented in a study by Asante and Agyemang.⁸⁵ In Ghana, women's time spent traveling to both sell and receive goods across the border

79. It is not uncommon that, if they are unable to provide adequate identification documents upon crossing the border, they may face various degrees of harassment as well as the confiscation of their goods.

80. Sabine Mensah, Jacqueline Jumah and Zachary Kazzaz, "Use of Cross-Border Digital Payments in the COMESA Region".

81. World Bank Group, The Global Findex Database 2021.

82. Nadia Jeffrie, The Mobile Gender Gap Report 2023 (GSMA, May 2023).

83. Catherine Makanda Kioko et al., "Enhancing Access to Finance for EAC Women Cross-Border Traders: Diagnostic Study," (Washington, D.C.: World Bank Group).

84. Sabine Mensah, Jacqueline Jumah and Zachary Kazzaz, "Use of Cross-Border Digital Payments in the COMESA Region".

85. Charlotte Wrigley-Asante & Ernest Agyemang, "Trading On-And-Off The Road: Experiences of Ghanaian Informal Cross-Border Traders," Ghana Social Science Journal 16, no. 1 (2019): 23-49

was seen to significantly decrease with the use of mobile phones for both communications and monetary transactions – also allowing them to travel safely without carrying large sums of cash. Thus, removing country-specific challenges related to identity documents through digital means could enable a higher use of IPS through MMS.⁸⁶

2.4.3. SIMs for Migrants Using Digital Identity

Given that the digital identities granted to migrant or refugee populations do not necessarily serve as proof of citizenship (such as in the case of the Aadhaar in India)⁸⁷, they can also serve as a means to access connectivity at the border areas. For example, in Bangladesh, Rohingya migrants encounter challenges in obtaining mobile and MMS services in their names due to the lack of recognition from Myanmar and bans from Bangladeshi regulators – only circumvented by internationally recognized documentation such as UNHCR verification certificates. While there are workarounds available for humanitarian organizations conducting aid work, they are not ideal since they present as exceptions rather than systemic changes for inclusion.⁸⁸

This brings up an important consideration for digital identity design from a human-centered approach, as research on the use of mobile phones by migrating groups has demonstrated a link between access to connectivity and better mental health by positing that contact with friends and family decreases the stress of moving countries.⁸⁹ This is also directly linked to their inability to access mobile financial services in their own name due to KYC constraints, and requires further research across the Global South due to varying country-specific mandates.

86. Catherine Makanda Kioko et al., "Enhancing Access to Finance for EAC Women Cross-Border Traders: Diagnostic Study," (Washington, D.C.: World Bank Group).

87. N.M., Consultant at World Bank Group, interviewed by the authors, March 20, 2024.

88. Aaron Martin, and Linnet Taylor, "Exclusion and Inclusion in Identification: Regulation, Displacement and Data Justice," *Information Technology for Development* 27, no. 1 (2021): 50–66.

89. Mark Latonero and Paige Kift, "On Digital Passages and Borders: Refugees and the New Infrastructure for Movement and Control," *Social Media + Society* 4, no. 1 (2018).

3. Regional Integration: Digital ID Enabled Interoperability and Free Movement Agreements in Africa

3.1 Introduction

Regional integration is primarily understood as the “integration of physical and institutional infrastructures” to lower production costs, drive competition, and facilitate the free flow of people, goods, services, capital, and information.⁹⁰ In a globalizing context seeking such integration, digital ID credentials are useful tools to counter human trafficking, irregular border crossings, tax evasion, and other forms of fraud.⁹¹ Further, its success requires regional cooperation to mitigate the risks of exclusion and surveillance of non-nationals when national governments make digital biometric ID mandatory to access social and financial services. Cooperation needs the willingness of all stakeholders to provide some form of recognised identity proof to all natural persons in their territory, including stateless persons and those without adequate formal documentation.

The prevalence of institutional measures and ideological commitments make the African case study relevant while exploring the potential of digital ID to enhance regional integration. At the continental level, the African Continental Free Trade Area Agreement (AfCFTA) forms the bedrock for subsequent integration initiatives, such as the African Union’s “Agenda 2063” – which outlines the “African Passport and Free Movement of People” policy, facilitating visa-free travel, work and residence to all African citizens.⁹²

Establishing regional economic communities (REC) is a critical step towards economic and political unity at a continental level. The East African Community (EAC) and ECOWAS, as RECs recognised by the AU, are leveraging their existing protocols on free movement to facilitate the development of national biometric digital ID of member states. The development of national foundational ID systems is a fundamental step in furthering the progress of regional integration to provide verifiable and secure credentials for migrants. This holds implications for seamless border crossing, subsequent social integration and access to emergency services in the host country. Establishing the instruments necessary for safe, orderly and regular migration can further ameliorate hesitations regarding the consistent implementation of free movement agreements.

All countries in the EAC and the ECOWAS have or are in the process of upgrading their passports to follow the standardized specifications of their respective blocs. For instance, after the launch of the East African e-passport in 2016, member countries have begun to issue it, with 5 of the 8 member countries having transitioned. The Democratic Republic of the Congo and the Republic of South Sudan are in the process of issuing the EA e-passport.⁹³ These machine-readable biometric passports allow for visa-free travel to signatories of the ECOWAS “Protocol on the Free Movement of Persons”,⁹⁴ and the EAC “Common Market Protocol”.⁹⁵

Passports, however, tend to be significantly more expensive than other government-issued identity documents. The mutual recognition of national biometric ID cards (found to be free or substantially less expensive) can facilitate greater movement of persons in a safe, regulated manner. Currently, within the EAC, Kenya, Rwanda and Uganda mutually recognise each other’s national ID in lieu of a passport. Examining the status of digital ID in West Africa, with reference to the interoperability frameworks at the continental level, indicates the potential challenges and opportunities that lie in the field.

90. World Bank, “Regional Integration Overview”, n.d.

91. USAID, *Digital Identity and Inclusive Development*, Infographic, n.d.

92. African Union, *Guidelines for the Design, Production and Issuance of the African Passport*, n.d.

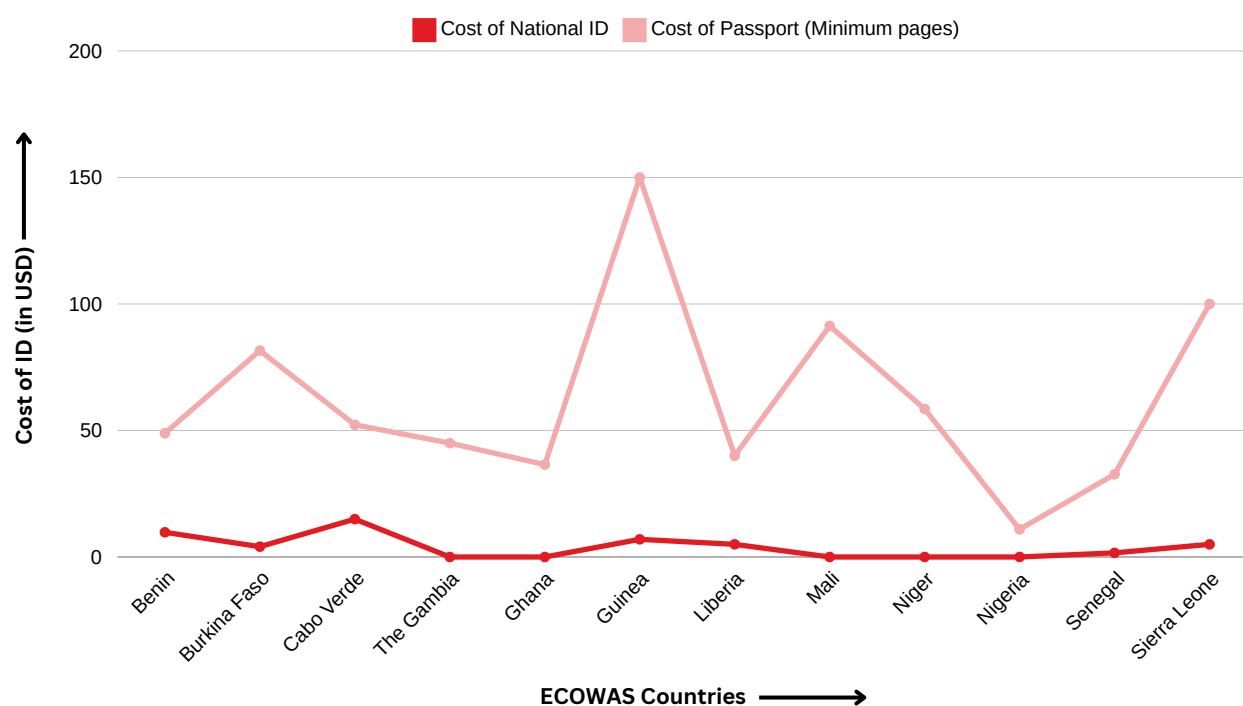
93. East African Community, “EA e-Passport,” n.d.

94. Aderanti Adepoju, Alistair Boulton, and Mariah Levin, “Promoting Integration Through Mobility: Free Movement under ECOWAS,” (2007).

95. Kenya National Qualifications Authority (KNQA), “East African Common Market Protocol,” (2012).

Figure 11

Country-Wise Cost of National ID and Passport, ECOWAS*



Source: Individual country websites.

*Guinea-Bissau, Togo and Côte D'Ivoire have not been included in this dataset due to lack of official information on national ID or passport issuance cost. All estimates for costs of passport are for the minimum number of pages that can be issued, as they vary country-wise.

3.2 The ECOWAS Protocol in West Africa

The ECOWAS Protocol, adopted in 1979, has been divided into three phases, moving from the abolition of visas to the right of residence, employment, and some social protections, with the final phase of the right to establish enterprises.⁹⁶ Its successful implementation precludes the need to provide citizens with reliable identity documents that are affordable and accessible. To this end, there are three primary initiatives that are present in the region:

- the ECOWAS National Biometric Identity Card (ENBIC) that seeks to replace the ECOWAS Travel Certificate;
- the national efforts to develop biometric IDs;
- the West Africa Unique Identification for Regional Integration (WURI) program of the World Bank.

The World Bank's ID for Development (ID4D) program is also assisting with developing inclusive foundational ID systems in Nigeria.⁹⁷ Furthermore, the implications of Burkina Faso and Niger withdrawing from the ECOWAS on the WURI program are yet to be announced.⁹⁸

3.3 WURI and Foundational IDs

The absence of accessible civil registration systems in the Global South has led to a lack of documentation, such as birth certificates, which are necessary to prove nationality or citizenship. Paper-based systems are encumbered with several logistical challenges that prevent the maintenance of databases in the long-run. This has encouraged the development of biometric foundational ID (fID) systems that can instead act as official proof of identity, recording minimal biographic and biometric attributes of all natural persons in a territory.⁹⁹

96. Aderanti Adepajo, Alistair Boulton, and Mariah Levin, "Promoting Integration: ECOWAS."

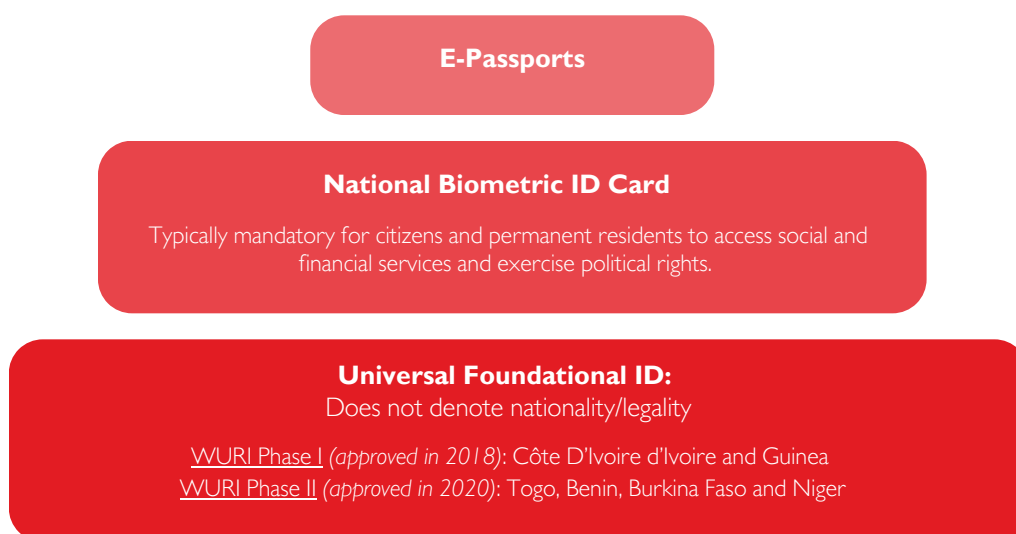
97. World Bank, "National Digital Identification For Development Project."

98. Boureima Balima and Tiemoko Diallo, "Niger, Mali, Burkina Faso Say They Are Leaving ECOWAS Regional Block," Reuters, January 28, 2024.

99. World Bank, "Benin, Burkina Faso, Togo, and Niger: Second Phase of West Africa Unique Identification for Regional Integration and Inclusion (WURI) Project," April 10, 2020.

Figure 12

Types of ID in ECOWAS



Source: Key types of digital ID identified by authors through desk-research and KIIs on ECOWAS identity ecosystem.

WURI has three components or stages:

Component 1: Strengthening Legal and Institutional Framework

- Legislatures have not consistently matched the rapid pace of digitization in several countries, as a result of which digital ID systems lack adequate legal sanction, data protection frameworks and independent regulatory authorities. In Kenya, for instance, the digital ID framework called Hudumba Namba has been declared invalid by the courts, and the replacement system Maisha Namba has run into similar legal hurdles. Having phased out analog national ID, there is a backlog in providing digital ID mandatory for citizens to access key services.¹⁰⁰ To avoid breaching constitutional mandates while securing the privacy and safety of all natural persons, it is imperative that a comprehensive legal framework with adequate safeguards is developed before digital ID systems are rolled out. With this in mind, the WURI program includes the following steps in its first component:
 - Review of the legal and regulatory framework
 - Creation of an independent fID System Authority
 - Review of the legal and regulatory framework
 - Creation of an independent fID System Authority
 - Regional dialogue between stakeholders on trust frameworks that can enable the mutual recognition and interoperability of fID credentials issued by national authorities
 - Development of institutional safeguards including grievance redressal mechanisms.¹⁰¹

Component 2: Establishing Robust and Inclusive fID Systems

- Registration of persons remains low in West Africa due to the lack of prior identity documentation and inaccessibility of national ID documents caused by high costs, citizenship requirements and centralized location of registration centers. The WURI program seeks to provide a low-cost, universal fID which links basic biographic data — first and last name, date of birth and gender — along with biometric data. The legal framework would delimit the type of data that is collected to prevent excesses that can put migrants, stateless persons, refugees and other vulnerable groups at risk.
- Although the fID system is parallel and complementary to civil registration, by assigning a unique identification number (UNI) at birth, fID will attempt to ameliorate the civil registration process from birth. This is significant because the ages for mandatory national digital ID tend to range from 15-18 years old.
- The component will finance the production and delivery of credentials printed on low-cost material. Instead of a chip, the machine-readable quick response (QR) code will store beneficiary data for future verification.¹⁰²

100. Washington Gikunju, "Broken System: Inside Kenya's ID Crisis," Nation Media Group, February 19, 2024.

101. World Bank, "Benin, Burkina Faso, Togo, and Niger: Second Phase of (WURI) Project".

102. Ibid.

Figure 13

Process of Issuing Identity Credentials Under the WURI Program



Component 3: Facilitating access to services through fID credentials

- In the absence of mass coverage of national biometric ID cards, along with the voluntary nature of this registration, it is crucial that the fID credentials are a viable alternative to other identity credentials for accessing essential services.
- Notably, the program advocates for the recognition of fID credentials at a regional level to allow access to mobile services, and the portability of financial services, which would have beneficial consequences on cross-border trade.¹⁰³

3.4 ECOWAS National Biometric ID

National governments have ramped up the efforts to produce and deliver national biometric ID cards primarily for citizens and permanent residents. Mapping the ECOWAS region specifically, three types of foundational IDs are emerging (see Figure 12). The ENBIC, as stated, serves both as travel document and as national proof of identification to access government services. Countries such as Senegal and Ghana have substituted pre-existing national ID cards with the ENBIC, whereas Sierra Leone and Nigeria seek to make it a separate and optional document.¹⁰⁴ Mali, which has since withdrawn from the ECOWAS, adopted a national ID card which complies with the ECOWAS specifications on the mandatory security elements. It remains unclear whether prior to its withdrawal, the Mali national biometric ID was recognised as a travel document by virtue of its compliance.

Political uncertainties thus make mutual recognition of national IDs relatively less reliable than International Civil Aviation Organization (ICAO)-standard passports, as can be observed with the case of Burkina Faso. The country has withdrawn from ECOWAS after its mandatory implication of ENBIC ID credentials, replacing national biometric ID cards with regional ID cards – a precarious endeavor. Alternatively, the incentive to have low-cost, visa-free travel agreements, such as through ENBIC or mutually recognised Identity Credentials (IDC), could incentivize continuation in regional blocs. The IOM's Free Movement Zone Guide highlights such forms of integration as a means of reducing political rivalries and conflicts between nations.¹⁰⁵

3.5 Data Sharing and Mutual Recognition

At the continental level, the AU Interoperability Framework and the Smart Africa Trust Alliance (SATA) are fundamental guidelines shaping the development of policies that facilitate inclusive and trustworthy data-sharing practices for the mutual recognition of digital IDs. Specifically in West Africa, ECOWAS is currently seeking to engage a firm to streamline various digital ID initiatives with the ENBIC, in order to prevent the multiplicity of regional ID credentials.¹⁰⁶

According to the AU Interoperability Framework,¹⁰⁷ creating interoperable digital ID systems has three significant benefits:

- Facilitating safe, orderly and regular migration;
- Facilitating cross-border payments, including remittances ;
- Facilitating access to public and private systems in the host country without having to enroll in multiple foundational ID systems.

103. World Bank, "Benin, Burkina Faso, Togo, and Niger: Second Phase of (WURI) Project"

104. Stephen Matete, Senior Program Coordinator, IOM, Nigeria, interviewed by the authors, April 9, 2024.

105. Stephan D. Hofstetter and Rajeshkumar Raja. Free Movement Zones: Guide for Issuance and Border Management. Geneva: International Organization for Migration, 2021.

106. Stephen Matete, Senior Program Coordinator, IOM, Nigeria, interviewed by the authors, April 9, 2024; Economic Community of West African States (ECOWAS), *Engagement of a Firm to Develop a Roadmap from Foundational Identification Systems to the ECOWAS National Biometric Identity Card*, Terms of Reference, November 30, 2023.

107. African Union (AU), AU Interoperability Framework for Digital ID (AU, February 2022).

Figure 14

Country-Wise Status of ID Systems in ECOWAS

Country	ENBIC	Biometric Digital ID	Inclusive Foundational ID System
Benin	Yes	-	WURI
Burkina Faso (WITHDRAWN)	Yes	-	WURI
Cabo Verde	No	Yes	-
Côte d'Ivoire	No	Yes	WURI
The Gambia	Yes	-	-
Ghana	Yes	-	-
Guinea	No	Yes	WURI
Guinea-Bissau	Yes	-	-
Liberia	-	Yes	-
Mali (WITHDRAWN)	-	Yes: ECOWAS Compliant	-
Niger (WITHDRAWN)	-	-	WURI
Nigeria	Announced; To be Implemented; Will Be Optional	Yes	ID4D
Senegal	Yes	-	-
Sierra Leone	Optional	Yes	-
Togo	-	In-Progress	WURI

Source: Individual country websites.

As national biometric IDs become mandatory to access basic services (for example, eKYC requirements to make mobile money payments), and paper-based or analog systems are phased out, inclusive development necessitates equal provisions to prevent disruption to cross-border movements and trade. Similarly, SATA established by willing countries under the Smart Africa initiative, has created a Trust Framework that follows the example of the electronic Identification, Authentication and Trust Services (eIDAS) regulation in the European Union. By providing the incentive of economic growth through the participation of member countries in a unified digital market, the Alliance, in turn, incentivises upholding privacy and security standards in an evolving political landscape.¹⁰⁸ Its membership review process comprises adherence to implementation standards that include the aspect of data privacy and protection.

Together, the two frameworks indicate the possibility of employing mutual accountability as a means of ensuring data protection and privacy when democratic structures are not guaranteed in a national context. While the SATA membership review includes the auditing of applicants, the AU Framework proposes a voluntary, shared auditing mechanism between member states. Furthermore, the Framework establishes the need for national data centres under each State that separately store personal and sensitive data to minimize data shared in cross-border exchanges. It also advocates for the tokenization of verification processes which can further protect sensitive data. Thus, emphasizing data sovereignty at the national and individual level can allow for more robust protections in a digitalizing world (See Annex III).

108. Valerie Khan et al., *Smart Africa Alliance – Digital Identity, Blueprint*, Smart Africa, 2020.

While the research findings indicate that interoperable systems at a regional or continental level are not the urgent priority given resource constraints, implementing the minimum legal and technical standards can prevent disruptions in future adaptation.¹⁰⁹ The Framework takes this into consideration and clarifies that interoperable ID systems need not be re-engineered, rather, interoperability layers can be added through legally recognized instruments.¹¹⁰ The WURI model of creating interoperable fID systems for all participating member countries reflects another avenue of streamlining national and regional goals that could be adopted by countries yet to implement digital ID.

¹⁰⁹ Yiannis Theodorou, Senior Advisor and Global Lead-Digital Identity, Tony Blair Institute, interviewed by the authors, April 19, 2024.

¹¹⁰ African Union (AU), *AU Interoperability Framework for Digital ID*.

4. Risks and Mitigation Measures for the Sustainable Implementation of Digital ID Systems

4.1 Introduction

In order to accelerate the implementation of digital identification systems, as seen in the previous chapters, numerous countries across the Global South have adopted strategies that make the ownership of digital identity necessary for accessing basic rights, services, opportunities, and protections. In many cases, this has indeed led to an increase in the number of registered citizens and residents. As of mid-2022, according to the World Bank, 186 out of 198 countries had implemented a foundational ID system where identity records were stored in digital format.¹¹¹ However, it must be acknowledged that such transition uncovers structural challenges within political and social systems, as well as limitations of the digital technology, which, if not promptly addressed, may cause more harm than good.

In Nigeria, for instance, the National Identification Number (NIN), which can be obtained by Nigerian citizens and legal residents, was made mandatory for transactions and accessing a wide range of services provided by Government Agencies like the Central Bank of Nigeria (CBN), Nigerian Immigration Services (NIS), or Pension Commission (PENCOM).¹¹² Similar conditions apply to many countries across Africa¹¹³ and Southern Asia, with India being one of the pioneers with its Aadhaar card. However, only about 100 million out of over 200 million Nigerians are registered.¹¹⁴ This means that those who lack digital proof of identity are automatically excluded from the services mentioned above, and must undergo complex and lengthy processes to see their rights recognised. What is presented as a tool to broaden the participation in social, political, and economic life for all, can easily turn into a vehicle of exclusion and marginalization for already vulnerable categories, including migrants.¹¹⁵

This chapter provides an overview of the prevalent obstacles to obtaining a digital identity and enjoying the associated benefits, as well as of the risks to user data privacy and cybersecurity. These arguments are substantiated by concrete examples from the countries analyzed in previous sections. This chapter will also highlight good practices and potential mitigation measures that have been proposed or implemented to address the major gaps outlined.

This topic is very broad, and widely covered in the existing scholarship. However, due to the space constraints of this work, greater attention has been given to risks that can disproportionately affect migrant populations and to solutions that could be replicated in diverse contexts. Nonetheless, to gain an initial understanding of the vast range and interconnectedness of the issues, the reader can refer to Figure 15.

111. The ID4D Global Dataset covers 198 countries, excluding some smaller territories and jurisdictions. Cf. Anna Zita Metz et al., *ID4D Global Dataset 2021: Volume 2 - Digital Identification Progress & Gaps* (Washington, D.C.: World Bank Group, 2024), 12.

112. Federal Republic of Nigeria Official Gazette, *Mandatory Use of the National Identification Number Regulations* (Lagos, Nigeria: The Federal Government Printer, 2015); National Identity Management Commission, "Nigerians Embrace the Mandatory Use of NIN", news release, October 16, 2019; United Nations Economic Commission for Africa, *Africa Digital Identity Landscape 2022*, May 15, 2023; Osita Enwe, "Understanding the Mandatory Use of National Identification Number in Nigeria".

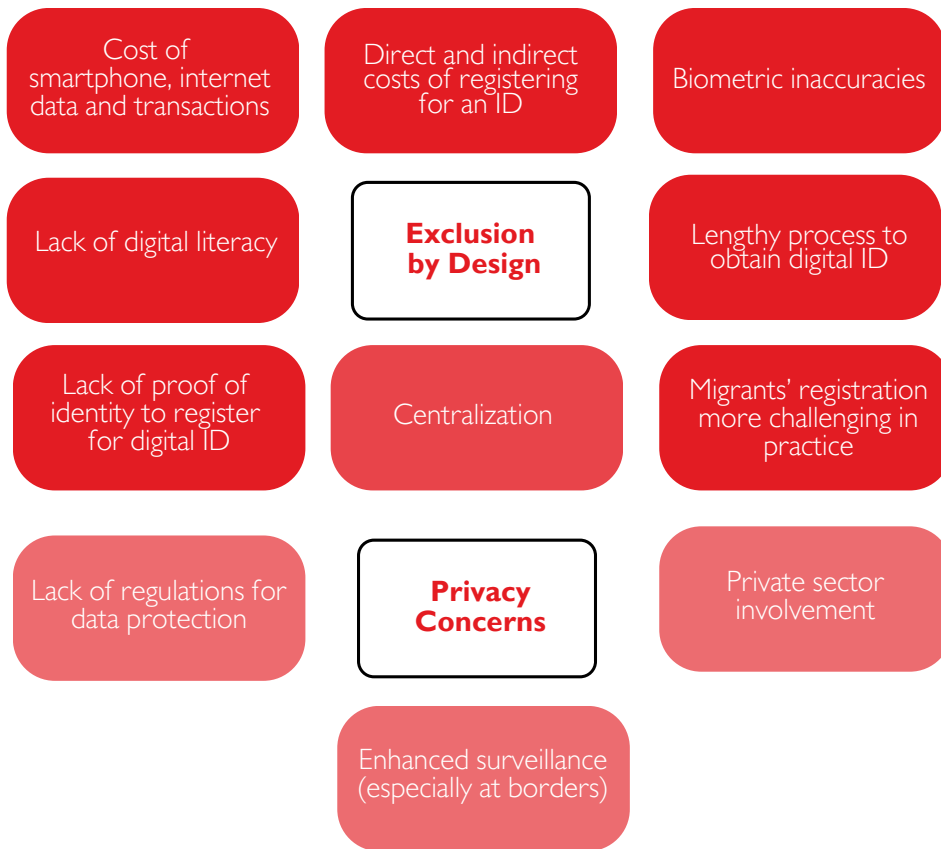
113. Ethiopia will soon make digital ID mandatory for banking operations and access to services (Ayang Macdonald, "Ethiopia to Make Digital ID Compulsory for Access to Government Services", *Biometric Update*, January 15, 2024; in Uganda the National Identity Cards (NIC) is necessary to get a mobile phone, standing for election and getting a bank account (Katelyn Cioffi et al., *Chased Away and Left to Die. How a National Security Approach to Uganda's National Digital ID Has Led to Wholesale Exclusion of Women and Older Persons* (New York, United States of America: Center for Human Rights and Global Justice, NYU, 2021); in Kenya, without an identity card, "one cannot freely travel outside the county, as the document must be produced at roadblocks. One also cannot access higher education, or register a child's birth, as all these processes require an identity card. People without identity cards cannot directly participate in the mobile telephony economy, as Kenya has mandatory SIM card registration laws, and neither can they operate a mobile money account in their own name." (Grace Mutung'u, *Digital Identity in Kenya*, case study, (India-South Africa: Centre for Internet and Society-Research ICT Africa, 2021), 26.

114. Stephen Matete, Senior Program Coordinator, IOM, Nigeria, interviewed by the authors, April 9, 2024.

115. Emrys Schoemaker et al., "Digital Identity and Inclusion: Tracing Technological Transitions", *Georgetown Journal of International Affairs* 24, 1 (2023): 36-45.

Figure 15

Risks Associated with Mandatory Digital ID



4.2 Structural Challenges

4.2.1 The Digital Challenge

The first structural obstacle that may arise in the use of digital identity is linked to its digital nature. While this allows for reduced waiting times and direct and indirect costs linked with service delivery, it requires the user to have access to a digital device and knowledge to use it proficiently. As of 2022, in Sub-Saharan Africa, smartphone ownership stood at a mere 49%, according to GSMA's findings.¹¹⁶ Moreover, research conducted by the International Federation of the Red Cross into a pilot deployment of Self-Sovereign Identity (SSI) wallets in Kenya revealed significant hurdles users faced with the technological demands and the absence of reliable internet connectivity.¹¹⁷ In India, while the landscape witnessed a surge in smartphone adoption among migrants due to the COVID-19 pandemic, the platform interface for accessing services and enrolling in social security schemes remains non user-friendly, hindering seamless engagement with digital solutions.¹¹⁸

Box 6

M-Pesa: A Partial Response to the Digital Challenge

In this regard, programs like M-Pesa, for which smartphones and internet access are not required, are a good compromise but remain partial solutions because they still require a certain level of digital literacy. Therefore, it is imperative to offer digital literacy training and guide new users in understanding digital systems, alongside ensuring access to digital devices and internet connectivity.

116. Aramé Awanis et al., *The State of the Industry Report on Mobile Money 2022* (London, United Kingdom: GSM Association, 2022)

117. Aiden Slavin et al., *Digital Identity. An Analysis for the Humanitarian Sector* (Geneva, Switzerland: International Federation of Red Cross and Red Crescent Societies, 2021); Margie Cheesman, *Digital Wallets and Migration Policy: A Critical Intersection*.

118. Prerit Rana, Chief Executive, Agrasar, interviewed by the authors, March 15, 2024.

The push for such rapid digitization experienced in the Global South has overwhelmed the existing infrastructure, including for civil registration and identity verification, which is often still analog or, at most, partially digitized – especially on the periphery. An example is the Ugandan healthcare system, where, in spite of the official announcements, the new digital Health Management Information System plays little or no role in practice and health workers keep recording NIN of patients in paper booklets for various reasons, including lack of digital devices and internet connection, or the risk of reprisals from community members of patients who are denied care.¹¹⁹

4.2.2 Lack of Accessibility

Logistical challenges, such as the lack of accessibility of registration procedures, are also widely considered a major obstacle for digital identity systems to effectively serve their intended purposes. The decision, often dictated by resource constraints, to concentrate enrollment offices in major urban settings and district capitals makes registration even more difficult for those living in remote areas, especially for the elderly, for persons with disabilities, and migrants or minority groups, who may not be familiar with the official languages used in digital ID programs.¹²⁰ Not everyone can undertake long, arduous journeys that may involve several days of absence from work and thus loss of income; additionally, the costs of food, accommodation, and transportation, as well as the stress associated with visiting public offices multiple times to complete identity verification and registration procedures contribute to making the registration even less appealing.

These difficulties are compounded by a not infrequent unawareness of the benefits of digital ID by overall mistrust in the institutions and service providers. This is reflected in official data, which show that an increase in coverage is not always associated with greater inclusion of traditionally marginalized social groups, including migrants.¹²¹ In this regard, bringing enrollment programs to remote villages – at least temporarily or periodically – and engaging local leaders in the process may enhance participation among individuals who are unable to travel to central offices. This approach could also help restore trust in government programs by making them more accessible and by encouraging community engagement and inclusivity.

4.2.3 Biometric Inaccuracies

A number of technical issues may also block the procedure, preventing the individual from obtaining a digital identity.¹²² Inaccuracies can occur during biometric registration, such as facial recognition failure due to disfigurements or physical features that the technology employed does not recognize,¹²³ as well as worn-out fingerprints that cannot be captured by the machine.¹²⁴

Biometric inaccuracies could also occur upon authentication: in India, numerous public distribution system (PDS) dealers denounced the inability to provide portability to customers¹²⁵ with their due rations because of biometric authentication failures.¹²⁶ As mentioned in chapter 1.2, authentication failures due to invalid fingerprints are not uncommon and primarily affect the elderly. Until 2018, card holders could alternatively get authentication with a one-time password (OTP) and receive the ration they were entitled to. However, after the government decided to eliminate this alternative option for authenticating, older persons cannot receive their ration if their fingerprints are not recognized by the system, and must rely on the other registered members of the household. This is particularly problematic in the Indian context, where mobility rates are high with younger household members emigrating, and the elderly are automatically excluded from this benefit.¹²⁷ Additionally, the PDS process has been further complicated by procedural obstacles such as missing beneficiary records and difficulties in adding new members to ration cards, revealing the gap between policy implementation and citizen realities.¹²⁸

On a more general level, it may be prudent to adopt a multimodal approach to biometric data collection (fingerprints, iris scan and facial picture) until the technology is refined. Although this strategy may incur additional costs in the short term, it represents an effective measure to ensure accuracy and reliability in identification processes.¹²⁹ However, it should be noted that the high direct and indirect costs of biometric infrastructure make it

119. Cioffi et al., *Chased Away and Left to Die*, 14, 49-50.

120. Chaudhuri, "Distant, Opaque and Seamful..."; Cioffi et al., *Chased Away and Left to Die*; Eve Hayes de Kalaf and Kimberly Fernandes, *Digital Identity: Emerging Trends, Debates and Controversies* (London, United Kingdom: Institute for Historical Research (SAS), University of London, 2023).

121. Cioffi et al., *Chased Away and Left to Die*; Preit Rana, Chief Executive, Agrasar, interviewed by the authors, March 15, 2024.

122. Hayes de Kalaf and Fernandes, *Digital Identity*.

123. Cioffi et al., *Chased Away and Left to Die*.

124. Chaudhuri, "Distant, Opaque and Seamful...".

125. Portability is a feature of the One Nation One Ration Card (ONORC) that allows card holders to access their food entitlement at any fair price shop (FPS) in India.

126. Chaudhuri, "Distant, Opaque and Seamful..."; Dalberg Group, *Fulfilling the Promise of One Nation One Ration Card. A Frontline Perspective from 5 Indian States* (Dalberg-Omidyar Network India, 2022), 18-19.

127. Dalberg Group, *Fulfilling the Promise of One Nation One Ration Card*.

128. Chaudhuri, "Distant, Opaque and Seamful...".

129. Arun Ross and Anil K. Jain, "Multimodal biometrics: An overview.", in 12th European signal processing conference (Vienna, Austria: IEEE, 2004); Fennie Wang and Primavera De Filippi, "Self-Sovereign Identity in a Globalized World: Credentials-Based Identity Systems as a Driver for Economic Inclusion", *Front. Blockchain* 2, 28 (January 23, 2020).

virtually inaccessible to low and middle income countries, which would need the support of development partners in order to overcome this obstacle.¹³⁰ In this regard, IOM and other international organizations, and financial institutions, could play a key role in the implementation of the infrastructure by fostering bilateral and multilateral partnerships and collaborations.¹³¹

Box 7

One-Time Password (OTP): An Alternative Authentication Method

Reinstating the OTP as an alternative authentication method in the electronic point of sale (e-POS) device could help mitigate the risk of exclusion for the elderly and other population groups. However, it must be acknowledged that the OTP system had its own limitations due to low mobile phone ownership and connectivity issues, as well as a low share of registered mobile phone numbers.¹³²

132. Dalberg Group, *Fulfilling the Promise of One Nation One Ration Card*.

4.2.4 The Lack of Official Identification Documents

Despite the widespread use of biometric registration, in most cases it is still necessary to present primary identification documents, such as a national ID card, passport, or birth certificate.¹³³ This highlights two issues. Firstly, the adoption of digital identity solutions as part of the national security system, where authorities require population registration to exert some degree of control. This is further exacerbated by the fact that social and financial services provided through digital IDs are designed for nationals or, at most, legal residents, increasing the risk of exclusion and marginalization of undocumented nationals, stateless populations, migrants, and ethnic minorities.¹³⁴

Secondly, it overlooks the fact that in many countries across the Global South a significant portion of the population lacks physical proof of citizenship – such as older persons, migrants, stateless individuals, as well as ethnic minorities, who may not possess a birth certificate. In Uganda, for example, prior to the introduction of the digital ID card commonly known as Ndaga Muntu, individuals could access healthcare facilities “without complying with any single rigid documentary, biometric, and formalized ID requirement”,¹³⁵ and community-based targeting was sufficient to confirm their identity. This was particularly important for persons over 80 years old, who could thus access the Senior Citizen Grant (SCG) cash transfer scheme without an ID.¹³⁶ Now that SCG schemes rely heavily on digital aspects of the national ID system and the National Identification Card (NIC) is mandatory to receive cash through a bank account, many people find themselves in serious difficulty because they do not have documents proving their age and thus cannot receive support.

To make the system truly inclusive, free efficient biometric registration associated with community-based identity verification could compensate for insufficient documentation. Moreover, until easy access to digital ID cards is ensured at all levels, alternative forms of identification should be accepted to access social rights.¹³⁷

4.3 The Hurdles of a Centralized Digital ID System

4.3.1 Depersonalization Through Centralization of ID Systems

The negative implications of the absence of adequate documents are exacerbated by the highly centralized nature of the digital identification system, prevalent in the Global South. These systems were designed to make service delivery more efficient and reduce fraud, at the risk of depriving local leaders of their authority as guarantors for identity verification of their fellow citizens.¹³⁸

130. Quelita Gonçalves, Head of Office, IOM, Cabo Verde, interviewed by the authors, March 20, 2024.

131. Quelita Gonçalves, Head of Office, IOM, Cabo Verde, interviewed by the authors, March 20, 2024; Stephen Matete, Senior Program Coordinator, IOM, Nigeria, interviewed by the authors, April 9, 2024; Marco Pellegrini, Project Manager, IOM, Armenia, interviewed by the authors, March 25, 2024.

133. This constitutes a ground for statutory exclusion for the ID system for those population groups that do not meet the inclusion criteria, and so may be unable to prove their legal identity. (Cf. ID4D, “Designing an ID System. Assess Risks,” in *ID4D Practitioner’s Guide: Version 1.0* (Washington, DC: World Bank, October 2019), 52-60).

134. Mutung’u, *Digital Identity in Kenya*.

135. Cioffi et al., 2021, *Chased Away and Left to Die*.

136. Ibid.

137. Neema Iyer, *Digital Identity in Uganda, Case Study*, (India-South Africa: Centre for Internet and Society-Research ICT Africa, 2021).

138. Cioffi et al., 2021, *Chased Away and Left to Die*.

In India, before the introduction of the Aadhaar card, people would not pay much attention to how their name was spelled. Nowadays, spelling needs to be standardized on each and every document to avoid exclusion. However, this can no longer be done through local leaders and municipal councilors, as management has been centralized, resulting in longer and more complex procedures handled by an office far away. Meanwhile, individuals may be unable to benefit from social security schemes, enroll their children in school or conduct digital transactions. Additionally, it is often difficult to determine which office is responsible for a specific service.¹³⁹

Therefore, while, on one hand, centralizing and anonymizing procedures have contributed to combating corruption and improving the collection of users' personal data necessary for targeting their needs, on the other hand, their implications have disproportionately affected certain population groups, such as migrants, the elderly, those living in remote areas, and ethnic minorities. A single error in a central database can permeate an entire society as other institutions grow to rely on the data held therein; therefore, a failure to register an individual will result in that person being excluded from society, while a successful but fraudulent registration could result in abuse.¹⁴⁰

4.3.2 Privacy Concerns in Centralized Systems

The implications of centralized digital identity systems are also linked to major concerns raised by scholars and practitioners about the risks of data privacy and cybersecurity. When applying for an identity document, individuals are photographed, fingerprinted and have their personal and familial details captured and stored in a database, including full names, birth date and place, address, citizenship status, and in some cases also tribal affiliation, caste, and religion. Zimbabwe is one of the many countries where this data is then shared for e-governance purposes, including with pension offices, the government salaries bureau, the immigration and police departments, the Statistics bureau, the motor vehicle registration system, as well as with the private sector through businesses such as telecommunication companies and banking services.¹⁴¹

The idea is to target certain groups and map the composition of neighborhoods more easily in order to deliver tailored services efficiently. However, there is a genuine risk of ethnic profiling and excessive surveillance,¹⁴² especially for government opponents and critics, journalists, activists, minorities, and migrants. This threat is exacerbated by the lack of transparency in the management and sharing of personal data, often with users being unaware of what is at stake. Some experts and practitioners interviewed for this research have observed that for many the opportunity to benefit from social security schemes or financial support outweighs the potential harm, and they do not worry much about how their personal details will be shared, stored, and utilized if it means escaping poverty.¹⁴³

This has raised urgent questions, particularly from the academic community and civil society organizations, regarding the need for regulatory measures for data management in digital format. The most common threats to privacy are presented below. In Nigeria, the otherwise robust consumer protection framework still lacks effective monitoring and enforcement regimes by the competent authorities, leaving individuals at the mercy of public and private service providers.¹⁴⁴ The circumstances are similar across the Global South, where protection frameworks are very recent – when not still being designed – and there is the concrete risk of undermining the rights of citizens and residents who enroll in digital systems. In the United Republic of Tanzania, for instance, the lack of a strong legal framework on digital identity has allowed mobile network operators (MNOs) to contravene commitments to data privacy and protection, as highlighted in a recent country report on biometric identity and SIM card registration.¹⁴⁵

In Kenya, legislation has recently been strengthened to address the new challenges of digital technologies and artificial intelligence; nonetheless, the data protection impact assessment foreseen in the implementation strategy of the Maisha Namba digital ID project has not yet been conducted.¹⁴⁶ In general, a measure such as a data protection impact assessment could realistically be a good compromise in countries where digital identity systems have been rapidly rolled out on a large scale in the wave of a broader enthusiasm for the digital revolution at the expense of creating a solid framework to protect users' personal data and address existing problems, such as the discretionary powers of registration officers to issue the national identification card or the tendency to securitise the process and police non-compliant individuals.¹⁴⁷

139. Prerit Rana, Chief Executive, Agrasar, interviewed by the authors, March 15, 2024.

140. Hal Berghel, "Fungible Credentials and Next-Generation Fraud", *Communications of the ACM* 49, 12 (December 2006).

141. Nhlanhla Ngwenya, *Digital Identity in Zimbabwe, Case Study* (India-South Africa: Centre for Internet and Society-Research ICT Africa, 2021).

142. Isabel Bosman, *Digital Identification and Biometrics in East Africa: Opportunities and Concerns*.

143. Quelita Gonçalves, Head of Office, IOM, Cabo Verde, interviewed by the authors, March 20, 2024; Serena Natile, Associate Professor, University of Warwick, interviewed by the authors, March 21, 2024; Prerit Rana, Chief Executive, Agrasar, interviewed by the authors, March 15, 2024.

144. Babatunde Okunoye, *Digital Identity in Nigeria, Case Study* (India-South Africa: Centre for Internet and Society-Research ICT Africa, 2021); Enwe, "Understanding the Mandatory Use of National Identification Number in Nigeria"

145. Josephina Nshunju, *Country Report: Biometric Identity, SIM Card Registration, and Telecoms in Tanzania* (Dar es Salaam, United Republic of Tanzania: Digital Agenda for Tanzania Initiative, 2023).

146. Kenn Abuya, "Kenya Suspends Digital IDs amid Data Protection Concerns", *Techcabal*, December 5, 2023.

147. Mutung'u, *Digital Identity in Kenya*.

4.4 Enhancing Legal Frameworks for Secure and Inclusive Digital Identity Systems

To mitigate the risks outlined above, the academic community, which has explored in depth the implications of these new digital systems for the population, agrees with experts and international organizations' representatives on the need to strengthen legislation on digital identity, especially to protect the groups most vulnerable to data breaches, including migrants. About 70% of African countries have now some data protection laws in place,¹⁴⁸ but there is still room to manoeuvre, in order to reduce data sharing among different government agencies and private actors involved, and in general to narrow down reasonable grounds under which digital identity data can be accessed.¹⁴⁹

Furthermore, since digital ID programs aim to create a population management database, the need for independent oversight for issues such as data sharing cannot be overlooked.¹⁵⁰

A more robust framework would also serve as a shield to prevent the risk of hacking and data breaches, as well as establish redressal mechanisms and ensure access to justice for those who have been victims of violations. Similarly, strengthened authentication procedures would prevent identity duplication and fraud, ensuring uniqueness.

148. Chris Burt, "Africa's Data Protection Action Pushing Digital ID Forward", *Biometric Update*, June 7, 2023.

149. Mutung'u, *Digital Identity in Kenya*.

150. *Ibid.*

Conclusion and Recommendations

The present report identifies opportunities to leverage digital ID to assist the sustainable development of countries in the Global South. Specifically, the research looked at good practices and policy recommendations that foster social and financial inclusion of migrants. Simultaneously, it noted the structural challenges that can lead to exclusion, particularly of migrants whose duration of stay may not qualify them as residents, as well as surveillance and data privacy risks. With regards to the threats for national data sovereignty, further research is required to assess the risks associated with public-private partnerships for profit, and the impacts of foreign investments.

From the research, it emerged that due to their novelty, digital identity systems have been rolled out exclusively at the national level, with little consideration for migrants. Furthermore, existing practices concerning the inclusion of migrants through digital identity take place on a personal case-to-case basis at an informal level, therefore, they are not documented in published literature. Given the scarcity of materials specifically on the implications of digital identity on migrants' inclusion, we based our recommendations primarily on national level policies that could however be applied also to the benefit of migrant populations.

In light of the findings presented in the thematic chapters, the following recommendations are designed for governments to develop inclusive digital ID systems that have the potential to reduce the duplication of efforts and optimize resource usage:

Social Inclusion

- When designing digital identity systems, include the experiences of populations that are traditionally at the margins of digital advancements and service provision, in order to avoid further exclusion.
- Ensure the provision of analog options for individuals who lack access to digital technologies, thereby preventing their exclusion from government-enabled social welfare services.
- Simultaneously promote digital skills through education and training programs, effectively empowering all persons including migrants to navigate social welfare when linking systems to digital identity.
- Prioritize a user-centric design, including the availability of multiple regional languages and text-to-speech options that can improve accessibility for persons with disabilities and mitigate literacy-based exclusions.

Financial Inclusion

- Lower transaction and customer verification costs for financial actors by leveraging economies of scale through digital-ID-enabled electronic Know Your Customer (e-KYC) procedures.
- Implement tiered KYC requirements by developing a flexible system such as Nigeria's Payment Services Bank (PSB), to increase financial inclusion with a less demanding onboarding process for new customers.
- Support the integration of mobile phone numbers as account numbers for Mobile Money Services (MMS) to simplify account creation and access to wide-ranging services such as savings, payments, credit, and remittances.
- Support identity initiatives that facilitate market access for international migrant entrepreneurs and encourage the development of infrastructure that promotes smooth operations for these businesses.
- Develop an integrated, secure, and user-friendly digital payments platform that allows low-cost mobile money transactions for Micro, Small and Medium Enterprises (MSMEs) undertaking cross-border trade to mitigate the security risks of carrying large amounts of cash.
- Develop 'one-stop border posts' that streamline customs and immigration processes through interoperable digital ID solutions and biometric identification for cross border traders.

Regional Integration

- Foster mutual cooperation between national governments by permitting migrants to register for social and financial services using the digital ID credentials of their country of origin. This shall prevent the burden of fresh enrollment costs for the user and the host government.
- Develop a universal, inclusive foundational ID that complements existing national biometric ID systems, to ensure access to essential social and financial services to all natural persons in a territory.
- Adopt mutual accountability mechanisms that standardize legal, data protection, and privacy safeguards while the digital ID implementation is at a nascent stage, in order to facilitate regional interoperability in the future.
- Prioritize low-cost and secure digital ID credentials over expensive technology that includes extraneous features to tackle coverage and accessibility issues.
- Standardize ID credentials at the regional level to ensure data minimization, and capture only relevant biographic and biometric data.

Risks Assessment

- Deploy temporary mobile registration units in remote areas on a regular basis (for example, once a year) to enhance accessibility and trust in digital identity systems.
- Implement alternative forms of identity verification for migrants who lack valid proof of identity in the host country to enhance inclusivity in digital identity systems. As is already happening in Ghana, testimony of trusted persons from the community is considered a viable option.
- Implement robust data privacy regulations and transparency measures to protect personal information in centralized digital identity systems in line with international standards with the support of IOM / UN bodies.
- Design robust frameworks tailored to national needs to prevent hacking and data breaches, and ensure access to justice for victims of violations. This is crucial when private companies, especially foreign ones, are involved in digital identity-related processes, to ensure national sovereignty over data.

Annex I

Intersections with Artificial Intelligence

The digitization of ID system paves the way for the use of artificial intelligence (AI) throughout the migration cycle. Following the definition provided in IOM's World Migration Report, 2022, AI can be understood as "the programming of computers to undertake tasks normally requiring human intelligence". In the digital ID landscape, AI technologies are primarily used to match biometrics against authoritative databases. The expanded base of biometric data collected will increase AI use cases, as demonstrated by the development of AI behavioral analysis that utilizes data such as gait and facial microexpressions to detect harmful intentions in public spaces.¹⁵¹

The deployment of AI tools such as low-risk visa application processing, drone monitoring of borders and chatbots for legal advice to migrants is primarily located in Global North countries, as demonstrated by examples from Australia, Finland and the United States of America.¹⁵² However, countries in the Global South have also begun to make advances, specifically in facial recognition technology that can act as a lower-cost alternative to iris and fingerprint recognition. Further, it can accelerate the processing of documents and verification at border crossings, by addressing high turnover rates, large and unmanageable caseloads, administrative burdens, long waiting times, delays in service delivery, and language barriers.¹⁵³

The increasing accessibility of AI however risks the use of deepfake technology to surpass biometric verification systems through "the generation of realistic synthetic media".¹⁵⁴ Consequently, AI tools such as liveness detection are required to determine the authenticity of presented data. For instance, the Unique Identification Authority of India has developed in-house AI-enabled solutions to assess finger minutiae and images to detect liveness.¹⁵⁵

Beyond border management, AI-powered identity verification processes are being developed by the private sector, as with BACE-API in Ghana. The facial recognition verification service cuts hardware costs and allows clients to verify their identity remotely. It is a key intervention in this regard as its algorithms are trained on datasets of African faces, combatting the historic underrepresentation of darker-skinned individuals in AI training. As a consequence, it can mitigate misidentification errors. However, the datasets it has used and its access to public sector data for cross-verification purposes have not been disclosed.¹⁵⁶

The development of AI tools amplifies the public sector's reliance on private companies, which again raises concerns about data privacy. Mandatory registration for national ID cards and the subsequent use of collected biometric data to train AI algorithms bypasses consent and privacy concerns. For instance, the deal between the Zimbabwe government and Cloudwalk Technology and Hikvision for the roll-out of its mass facial recognition program has faced criticism for surveillance risks, as well as access to public data by a foreign country.¹⁵⁷ While datasets need to be inclusive to prevent racial biases in algorithms, personal and sensitive data should not be extracted without individual consent.

The reliance on AI technologies leads to difficulties in assigning accountability. Firstly, at the administrative front, when the data collected is stored and operated by security agencies there are fewer oversight mechanisms to ensure that the use of data is as per legal frameworks that allow for broad exemptions over national security concerns. Further, when decision-making processes are delegated to algorithms, the onus of proving identification falls entirely on the client/user, with inadequate redressal mechanisms.¹⁵⁸ Retaining analog forms of verification is also necessary, as technical failures ranging from power cuts to improper authentication can disrupt implementation.

Accountability risks extend to explainability, that is, why a specific decision was taken. The "black box" barrier in AI is the inability of a human observer to determine the logic behind a specific output. It is made more urgent in the context of border management and migration regulations, where accessing this internal logic is necessary to determine whether the output is prejudiced based on factors such as race, language and gender. Moreover, intellectual property regulations may require public sector partners to trust the quality of automated decision-making by private sector technologies, while being accountable for unfair or discriminatory outputs.¹⁵⁹

151. Ana Beduschi, and Marie McAuliffe. "Artificial Intelligence, Migration and Mobility: Implications for Policy and Practice." In *World Migration Report 2022*, edited by M. McAuliffe and A. Triandafyllidou. Geneva: International Organization for Migration, 2021.

152. World Migration Report, 2022.

153. Bernd W. Wirtz, Jan C. Weyerer, and Carolin Geyer. "Artificial intelligence and the Public Sector—Applications and Challenges." *International Journal of Public Administration* 42, no. 7 (2019): 596-615.

154. Anusha Bodepudi, and Manjunath Reddy. 2020. "Spoofing Attacks and Mitigation Strategies in Biometrics-as-a-Service Systems". *Eigenpub Review of Science and Technology* 4 (1):1-14; Yiannis Theodorou (Senior Advisor and Global Lead-Digital Identity, Tony Blair Institute), interviewed by the authors, April 19, 2024.

155. The Hindu. "UIDAI Upgrades Aadhaar Fingerprint Authentication Technology with Artificial Intelligence." *The Hindu*, February 26, 2023.

156. Gabriella Razzano. "AI4D – Digital and Biometric Identity Systems (AI4D)." Policy Paper. Research ICT Africa, 2021.

157. Gabriella Razzano. "AI4D – Digital and Biometric Identity Systems (AI4D)".

158. Ibid.

159. Mirko Forti. "AI-Driven Migration Management Procedures: Fundamental Rights Issues and Regulatory Answers." *BioLaw Journal - Rivista Di BioDiritto*, no. 2 (June 2021): 433-451.

While AI tools, and specifically facial recognition technology, can reduce the logistical burdens of time and cost in verifying identities, there remain risks of discrimination due to algorithmic biases as well as potential abuse of surveillance technology.

To better study the link between digital identity and AI, future research could examine the type and extent of biometric data being shared by the public and private sectors in various national contexts, enumerating both the ensuing benefits and risks. Given the use of AI surveillance tools along borders, we require efforts towards rights-based consensus that balances the need to make datasets diverse to mitigate errors in sensitive contexts, while ensuring that non-anonymized data is not being used to train algorithms without the informed consent of participants.

Annex II

Glossary of Terms

Attribute	Inherent or named quality or characteristic such as name, date of birth, fingerprints, photo, identification number etcetera. ¹⁶⁰
Authentication	Establishing that an individual is who they claim to be, digitally performed through asserting factors including something they know (example, password); something they have (example, identity card) and/or something they are (example, fingerprints).
Authorisation	Determining the actions that may be performed or services that may be accessed based on asserted and authenticated identity.
Authoritative Source	An authoritative source of identity information is a repository or system that contains attributes about an individual and is considered to be the primary or most reliable source for this information. In the case that two or more systems have mismatched or have conflicting data, the data within the authoritative data source is considered the most accurate.
Biographic Data	Refers to attributes about a person or their life, often including information such as name, sex, age, nationality, etcetera.
Biometric Characteristics	A biological (fingerprint, face, iris) or behavioral (gait, handwriting, signature, keystrokes) attribute of an individual that can be used for biometric recognition.
Biometric SIM Registration	Registering biographic and biometric data of users in order to activate a SIM card. ¹⁶¹
Civil Registration	The continuous, permanent, compulsory and universal recording of the occurrence and characteristics of vital events, (such as birth, death and adoption) pertaining to the population, as provided through decree or regulation in accordance with the legal requirement in each country.
Credential	A document, object, or data structure that vouches for the identity of a person through some method of trust and authentication, including national ID cards, registered biometric characteristics like fingerprints etcetera.

¹⁶⁰. The following definitions, unless specified otherwise, have been directly adapted from World Bank, *ID4D Practitioner's Guide: Version 1.0* (Washington, DC: World Bank, October 2019).

¹⁶¹. GSM Association. *Access to Mobile Services and Proof-of-Identity 2020: The Undisputed Linkages*.

Cross-border migration	Refers to the movement of people across international borders from one country to another for the purpose of settlement, work, study, or other reasons, either temporarily or permanently, due to voluntary, forced, or economic, social, political, or environmental factors. ¹⁶²
Deduplication of Identity Records	Detection of duplicate identity records and inconsistent identity claims to establish the uniqueness of people within a system, primarily using biometric recognition and to an extent biographic data.
Digital Identity	A set of electronically captured and stored attributes and/or credentials that uniquely identify a person.
Digital Identification System	An identification system that uses digital technology throughout the identity lifecycle, including for data capture, validation, storage, and transfer; credential management; and identity verification and authentication.
Financial Inclusion	Refers to the accessibility and availability of essential financial services to all individuals and businesses, especially those traditionally underserved or excluded from the mainstream financial system. ¹⁶³
Foundational Identification System	An identification system primarily created to manage identity information for the general population and provide credentials that serve as proof of identity for a wide variety of public and private sector transactions and services; such as civil registries, universal resident or national ID systems, and population registers
Functional Identification System	An identification system created to manage identification, authentication, and authorization for a particular service or transaction, such as voter ID cards, driver's licenses etcetera.
Instant Payment Systems	Real-time payment systems that enable immediate interbank transactions, allowing funds to be transferred and settled instantly, typically within seconds or minutes, regardless of the time of day or day of the week. ¹⁶⁴
Interoperability	The ability of different functional units — e.g., systems, databases, devices, or applications — to communicate, execute programs, or transfer data in a manner than requires the user to have little or no knowledge of those functional units.

162. Marie McAuliffe and Linda Adhiambo Oucho, eds. *World Migration Report 2024*. Geneva: International Organization for Migration (IOM), 2024.

163. World Bank Report on Financial Inclusion.

164. European Central Bank, "What are Instant Payments?", n.d.

Legal Identity	Defined as the basic characteristics of an individual's identity. For instance, name, sex, place and date of birth conferred through registration and the issuance of a certificate by an authorized civil registration authority following the occurrence of birth. ¹⁶⁵
Mobile Money Systems	Mobile money enables financial transactions via mobile technology, formalizing informal sector transactions and improving access to financial services, especially for marginalized groups. Unlike traditional banking, it operates through mobile banking applications, utilizing e-KYC systems for verification. ¹⁶⁶
National Identification System	A foundational identification system that provides national IDs (NIDs)—often a card—and potentially other credentials that may establish, recognise and prove nationality and/or residency.
Public Key Infrastructure	A set of policies, processes, server platforms, software, and workstations used for the purpose of administering certificates and public-private key pairs, including the ability to issue, maintain, and revoke public key certificates.
Registration	The process through which a person applies for an ID system and the ID provider proofs their identity.
Regular Migration	Migration that occurs in compliance with the laws of the country of origin, transit and destination. ¹⁶⁷
Social Inclusion	Active and full participation and involvement of all individuals in social, economic, cultural, and political activities, particularly those who are marginalized, disadvantaged, or excluded. ¹⁶⁸
Trust Frameworks	Within the context of multi-party identity systems, the generic name for the set of system rules governing the collection, verification, storage exchange, authentication, and reliance on identity information that, collectively, allows participating entities to trust each other (e.g., Visa operating rules, the EU's eIDAS). The term is synonymous with terms such as “system rules”, “scheme rules”, “operating regulations” or “common operating rules”. ¹⁶⁹

165. United Nations Operational Definition, “United Nations Legal Identity Agenda”, n.d.

166. Yiannis Theodorou, *Leveraging Mobile to Accelerate Digital Identity Ecosystems: Considerations for Policymakers in Africa*, ID4Africa, 2019.

167. International Organization for Migration (IOM), *Glossary on Migration*, International Migration Law No. 34.

168. World Bank Report on Social Inclusion and Sustainability.

169. World Bank, *Glossary, in Benin, Burkina Faso, Togo and Niger: Second Phase of West Africa Unique Identification for Regional Integration and Inclusion (WURI) Project*, April 10, 2020

Unique Identity Number	Serialized digits that uniquely identify an individual registered in an ID system.
Verification	The process of verifying specific identity attributes or determining the authenticity of credentials in order to facilitate authorization for a particular service.

Annex III

AU Interoperability Framework (February 2022)

Objective	Salient Features
Protecting digital sovereignty of member states	<ul style="list-style-type: none"> • Instead of a unified continental digital ID system, advocates for the interoperability between existing digital ID systems. • Instead of aspiring for uniformity, advocates for common and open standards.
Protecting sensitive data of individuals	<ul style="list-style-type: none"> • Establishing national data centres under the State, with storage and processing space exclusively for personal and sensitive data, in order to minimise data shared in cross-border exchanges. • Advocating tokenisation that can prevent data harvesting, cloning and fraud. • Systems to ensure authentication of credentials without access to the transaction, through proof of majority (18 or 21 years old) or binary (yes/no) responses.
Ensuring adaptability of the framework in a changing context	<p>The Framework outlines three possible authentication measures that can coexist:</p> <ul style="list-style-type: none"> • Personal Digital Wallets: <ol style="list-style-type: none"> 1. Decentralised Public Key Infrastructure (D-PKI) records the claim to individual data from the authoritative source. 2. Verified ID credential (IDC) stored in a digital wallet 3. Service Provider can verify the IDC through the D-PKI Continental • Digital ID Federation: <ol style="list-style-type: none"> 1. Continental federation of IDC providers (including telecom providers, banks, governments). 2. Continental exchange established between IDC providers and service providers. 3. Once IDC is verified through the authoritative source, the IDC provider issues an authentication means that can be used going forward.

	<ul style="list-style-type: none"> • Digitally Signed Credentials: <ol style="list-style-type: none"> 1. A common, continentally managed Public Key Directory hosts public keys of authoritative sources. 2. Private keys, root certificates and hashing algorithms securely stored by Member States for encryption and integrity checks. 3. Standardised IDC can be verified through a verification software by public and private service providers.
<p>Ensuring mutual trust and accountability</p>	<ul style="list-style-type: none"> • Obligation to certify that participating member states meet the minimum requirements in terms of data privacy and compliance, as agreed upon by member states. • Proposed voluntary, shared audit mechanisms between member states.

Annex IV

Selected Case Studies

The following case studies refer to the chapters on financial and social inclusion. Although they present good practices and policies in the Global South, they are not relevant for the discourse on the use of digital ID for regular migration; therefore, they are not included in the main body of the text.

I. **Financial Inclusion and Cross Border Trade:** The Case of Refugee Entrepreneurs in Uganda

As of 2018, Uganda hosts up to 1.2 million refugees that are provided identification through a new initiative by the Ugandan Government in collaboration with the UNHCR – utilizing a Biometric Identity Management System (BIMS) that registers and verifies identities of refugees using face, iris and fingerprints data.¹⁷⁰ This refugee documentation is recognized universally and can be used for cash transfers, food distribution, as a temporary travel document, and to register a SIM card. In Northern Uganda, humanitarian organizations and cellular companies such as MTN and Airtel have worked closely in recent years to deliver humanitarian assistance to refugees in the form of unconditional cash transfers through company mobile money platforms, specifically as an agenda of the International Rescue Committee (IRC) and Mercy Corps in the region. Beyond providing humanitarian assistance, research by Betts et al. (2014) showcases how refugee entrepreneurs are utilizing this quick means for payments for large volumes of business transactions, attracting the attention of even larger telecommunication companies to their settlement areas.¹⁷¹

Each day, a significant number of Ugandans in turn visit refugee settlements from neighboring villages and cities such as Hoima, Mbarara, and Kampala to purchase products and services. Such transactions, supported by Ugandan policy for nationals' visits to settlements, play a central role in the economic life of many refugees. Refugees make a positive contribution to the host state economies, and are now being exemplified by the significant volume of exchange between refugees and Ugandan nationals through MMS facilitated by BIMS.¹⁷¹

II. **Social Inclusion in Crises:** Pakistan and the Integration of National Biometric IDs for Cash Transfers

Pakistan has made advances in building its digital infrastructure to support social assistance schemes. Its digital ID, the Computerised National Identity Card (CNIC), is issued by the National Database and Registration Authority to all adult citizens.¹⁷² It has been integrated as a key tool for identification and disbursement under the Ehsaas strategy. Launched in 2019, the strategy acts as the overarching framework for the social security net, streamlining objectives such as poverty alleviation, nutrition, education and disability support.¹⁷³

The Benazir Income Support Program, further reformed under Ehsaas *Kifalat*, is an unconditional cash transfer program launched in 2008 that takes a gendered approach towards poverty alleviation. It defines family, as an “ever-married woman holding a valid CNIC”, with direct payments made to the accounts in the name of the identified beneficiaries. Under the program, monthly transfers of 12 USD are made to about 4.5 million families. About 98 percent of beneficiaries withdraw their cash transfers regularly from Points of Sale (POS) of biometrically enabled banking operations and

170. Karin Johansson and Frida Ljungek, "Global Solution, Local Inclusion? A Study of Digital IDs for Refugees in Uganda," *Uppsatser Kulturgeografiska Institutionen*, 2019: 38.

171. Alexander Betts, Louise Bloom, Josiah Kaplan, and Naohiko Omata, *Refugee Economies: Rethinking Popular Assumptions*, *Humanitarian Innovation Project*, (University of Oxford, 2014).

172. Government of Pakistan, "National Database and Registration Authority (NADRA)".

173. Government of Pakistan, "The Multi-sectoral and Multi-stakeholder Ehsaas Strategy".

biometrically enabled ATMs. Beneficiaries in regions without banking or internet facilities are paid through Pakistan Post. New enrollments also require submission of biometrics at nearby payment touchpoints and are offered the option to open a savings account.¹⁷⁴

The Ehsaas Emergency Cash Transfer Program (EEC), piloted in April 2020, sought to ameliorate the economic burden of the COVID-19 pandemic, specifically on daily wage earners. In 2020, the country had 24 million workers earning daily or piece-rate wages or were self-employed.¹⁷⁵ Leveraging the existing digital payment system of BISP, the program targeted the disbursement of US \$858 million to 12 million families.¹⁷⁶ The existing 134 programs and registries were utilized to identify and include beneficiaries, who could also self-register. Categories of beneficiaries were then created and linked to the EEC through the NADRA, which verified the family through its civil registration database (National Socio-Economic Registry, NSER).¹⁷⁷ Through BISP and NADRA, the two-level verification was designed to minimize double counting, fraud, and exclusion errors. BISP's Grievance and Case Management System (GRM)/(CMS) was made available to existing and new beneficiaries, specifically after being devolved from the BISP Head Office and shifted primarily online for decreased resolution time.

The gendered approach of cash transfer under regular circumstances may increase the financial and digital inclusion of women, along with providing social support. However, during the COVID-19 emergency, new beneficiaries had to register by sending their CNIC number via SMS. Findings indicate that 75 percent of registrations were of new beneficiaries, of whom only about 25 percent would have access to both a CNIC and a mobile phone. This has risked their exclusion, as only an estimated 43 per cent of direct recipients would have been women.¹⁷⁹

174. Amjad Z. Khan and Gul N. Jamy, "COVID-19 G2P Cash-Transfer Payments, Country Brief: Pakistan," World Bank Group Policy Brief, 2020. 175. Sania Nishtar, "COVID-19 and the Pursuit of Financial Inclusion in Pakistan," *World Economic Forum*, June 3, 2020.

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Annex V

Selected Excerpts from Transcripts

Social Inclusion

I. Note 27 and 30: Prerit Rana, Chief Executive, Agrasar (India)

Interviewer: We were wondering about these challenges to accessing digital ID and (...) what demographics faced this challenge, is there a gender component ?

Prerit Rana: As per Indian Constitution, you have the right to equality when you are on Indian territory: it doesn't matter whether you are Indian or not, nor which country you are from. Even immigrants have the right to equality. In the gender aspect, the woman of the house has taken complete responsibility for running the house and I'm making a very generalized statement of course there are exceptions but women take complete responsibility for the household but men have the power, hierarchy and the authority (...) but access to social security and financial inclusion of a family depends on women (...) when it comes to finding information and putting efforts it boils down to women. (...) 90% of the people who are in the queue to access the ration are women (...) the ones who are concerned about good nutrition of child, unfortunately men are not. So it means that when any of it is not working it is the woman who struggles directly, so when she goes to say a common service center and when she struggles to get access she's the one who bears the burnt of it. [Description of government saving scheme for single girl child] Now you don't need to go to a bank you can do it through the post office, the postman who comes to your home and this is possible only because of digital identity and biometrics related to it. We focus a lot on savings and we ensure that people save, we are able to do justice to this work mainly because there is a digital identity otherwise they would have to go to the bank and get it deposited (...) Only women will go to the bank and get money deposited (...) and going out for a woman even in cities of say a three-mile difference is so huge that it feels as if they are going to a different city, it's inaccessible. And they're able to do it because now they can do it at their doorstep.

Interviewer: Digital ID seems to be mandatory to access services in most developing countries, which may cause the exclusion of certain populations from service delivery. In your experience, which demographic groups face the most challenges or discrimination in accessing service delivery and what is the impact of digital ID?

Prerit Rana: I don't think that digital ID and related digital provisions are problematic at a conceptual level. [...] I don't see the One Nation One Ration Card (ONORC) or the Savings Scheme for the girl child happening to the current extent without digital identity. One of the good things that has happened in the country [thanks to digital identity and the digitization of the service delivery system] is the provision of social security schemes online. A decade back, the option was to go to government offices and suffer humiliation; at least the internet doesn't humiliate you or shout at you, which is a significant change for the people in this country.

[Moreover], the [service delivery] system was designed so that to access those schemes you needed to have proof of identity for that particular place [of origin] and you actually had to go to that place and show your physical ID card to access those schemes. If you were originally from Bangalore, but living in Delhi, which is thousands of miles away, and in a state of abject poverty, it was impossible for you to go back to your state of origin, leverage identity proof and get access to social security schemes. Now, with digital identity, you can access them anywhere. [...] One way to access them is through recently established common service centers; the other is by going to the right website and do it on your own.

II. Note 33 and 35: N.M., Consultant, World Bank Group

N.M.: *The way Aadhar was introduced meant that now if I go to this ration shop I will have to give my biometric and, when I give my biometric, they will see that I belong to this household, and they will also see that I am required to get five kilogram of rice or two kilogram of sugar, and then I'm disbursed that. [An example of corruption is that] people go and pretend they belong to a certain card or some family that has moved—so there's this double disbursement happening. [If] you want to deduplicate beneficiaries in some sense—like all these redundancies—Aadhaar is supposed to tackle that and it does to a large extent. You are tagging people, you are registering whether they come or not, and you have the ability to see how many people came to the shop. [This way] you [also] have more information about demand and therefore better information on supply.*

N.M.: *Fingerprints, especially for older people change, when older people give biometrics it tends to really like show a lot of errors and if you have a shopkeeper or someone who is very rude or very you know by the book in some sense was – if this doesn't say yes or if this isn't validated or if it isn't linked to your Aadhar etcetera so I'm not going to give you these grains. It might not be the intention at the top to exclude people if they don't have these things connected but that's how it works out on the ground, and we've seen reports of very old people who tend to be either widows or much older men and people who are your most vulnerable kind of sections of society who this is targeted to and they don't end up receiving the benefits that they're required to.*

I'm giving this example to state I suppose two things: one is that there is the design and very clear benefit that you are required to get and in a lot of cases you do receive that benefit, leakages are a big problem and duplicate cards are a big problem all of this costs money and it's not that you know you want to spend less on providing food to people but if you can provide it to the most vulnerable then that's where you want to allocate your resources. So it allows you to better allocate it so all of these are good things. But it's also true that the way the system is designed and the way it operationalizes it tends to create a digital divide and you know it sharpens some of those things.

Financial Inclusion

I. Note 49: J.N., Student at Geneva Graduate Institute and M-Pesa User

Interviewer: *When you were registering your account, did you go to a shop, or was it conducted online?*

J.N.: *I had to go to a Safaricom shop, where you then register an account using your ID in-person. If you're a minor, you use your parents' or brother's ID. When they needed to re-verify our IDs due to recent changes in the new biometric linking in Kenya, I was abroad and couldn't do it in person. What I did was send my ID card to Safaricom via e-mail and that's how my account was validated.*

Interviewer: *Is an app or the internet necessary to use M-Pesa services?*

J.N.: *There is a Safaricom app with M-Pesa options, but you don't need to use the Internet to access services, it can be done by dialing on the phone. I'm also thinking of the people that come from the rural areas or don't even simply have smartphones, right? Even if you buy bundles, like internet bundles, what are you going to use them for if you don't have a smartphone? This [M-Pesa] would work for them anyway. For example, I remember this time I was a student and my phone was broken so I got a very small one and that's how I communicated with my parents and that's how they used to send me money, without internet.*

II. Note 51: Dr. Serena Natile, Associate Professor, University of Warwick

Interviewer: *With the work that you've sent us, what we understood was that financial inclusion is not going to change the structural inequalities that are present. One line that stuck out to me that you said was that it could lead to "new gender inequalities" — so I just wanted to ask if you could give us some examples of how it's increasing or decreasing inequality.*

Serena Natile: *So the key argument is that first of all digital financial inclusion can include more women, for instance within the banking sector, to provide them more tools to manage their small businesses or to balance the housework together with the small business or any kind of work that they might do. So it can provide some tools and can possibly result in more inclusion. However, the problem is that if they have these tools but don't have the actual means and instruments to take advantage of this inclusion, you are not going to change any structural injustice because from the perspective of a policy outcome you can assure and easily demonstrate that this instrument contributes to including more women— but is it easily accessible and is it easily available?*

III. Note 63: Yiannis Theodorou, Senior Advisor & Global Lead, Digital ID at the Tony Blair Institute for Global Change

Interviewer: *In West Africa, there isn't as much presence of mobile money operators. And so, looking into payment service banks and the comparisons between Nigeria and India's UPI, we wanted to understand more in depth reasons for this?*

Yiannis Theodorou: *So mobile money has worked in countries where there was no alternative. From a cost perspective, if it costs much cheaper to save and send money on a phone and therefore use more money than what the banks would charge, then that would lead to mass adoption. Kenya being the leading example obviously with M-Pesa and Safaricom. It all comes down to how much it costs to do the thing you want to do, save and send money and possibly get microloans.*

So I mean, Nigeria is obviously one of the leading countries in Africa around digital finance – a lot of engineers and thriving startup communities, lots of financial inclusion services beyond mobile money, micro payment services, micro banking, and micro insurance. So that is probably why you're not seeing that mass uptake of mobile money. I think you mentioned India, the other angle that you could look at and why it worked in India is they had a carrot and stick approach to Aadhaar and India stack. But basically the reason they've been largely successful is because first they told everyone if you don't get your number in X number of months or weeks, you're not going to get your benefits. I think the number one use case there was the liquid petroleum gas, and subsidies – many millions of people used to get it in cash and were suddenly told no cash, only digital. So go and sign up for UPI and Aadhaar. So that led to massive adoption.

IV. Note 87: N.M., World Bank Group Consultant

Interviewer: *Many government schemes in India as per government websites say are "for residents". If these schemes are Aadhaar linked, do they require proof of citizenship and how does that work?*

N.M.: *I don't think you need a citizenship proof for Aadhar, what you need is a residence proof – so do you live in this country right now, kind of thing. How I know this is that when I went to uni for undergrad was when Aadhar was introduced and I had friends who weren't from India who were in the country who have Aadhaars from that time. But you know these systems also have a weird way of taking a life of their own, i.e., when you introduce them, the goal is to get it to everyone so there might be slightly different ways in which they are doled out today. But today if you wanted to get Aadhaar or you wanted to change anything –*

there might be a bit more scrutiny, or someone might ask you a few questions. But from what I know, you only need to have resident proof, so you definitely need an address or proof of something like that which also has its own issues for some groups.

Regional Integration

I. Note 104 and 106: Stephen Matete, Senior Program Coordinator, IOM, Nigeria

Stephen Matete: Nigeria is a member of the ECOWAS community but it hadn't actually been able to implement the resolution on issues of the ECOWAS biometric identity card. Earlier this week there was a statement that came from the government of their intention to start issuing this but we are yet to see how that is going to go forward because that will be great for the Nigerians. It will also be a very critical part in terms of contributing to the interoperability but also access for their nationals to access various services across the region of Africa as a whole.

Stephen Matete: I think [need and viability of documents like ENBIC] is a point the policy holders need to really address, because if you look at the whole free movement protocols in Africa; because the AU also have the free movement protocol that member states need to have. They're also coming up with the AU passports, we have the regional economic blocs also coming up with biometric documents including passports and for example in East Africa there's even an East African passports and ECOWAS national cards and then you also have the national identification documents.

That is where for us at IOM our biggest concern is, what additional burden is this having on to the migrants and the people? What we've also seen is any kind of decisions around biometric documents etcetera at the back of it is all about revenue generations and I think this is where now the policyholders also need to really come to a conclusion whether if each and every country can be able to implement the legal identity agenda in entirety. We will be able to establish the identification of the people of the country, making sure that we have the broader documents that they need for the cross-border and continental integration. How can this data also be more integrated so that wherever you move you're not actually to be linked around but what we are still having is also this kind of siloed approach.

Because now in the country we have the NIN, at the regional level we have the biometric ID documents coming up, at the continental level we are going to have the AU passports etcetera and all these are stand alone in itself.

II. Note 108: Yiannis Theodorou, Senior Advisor & Global Lead, Digital ID at the Tony Blair Institute for Global Change

Interviewer: Is it a good enough suggestion that mutual agreements would help in incentivizing governments to create protected ID systems.

Yiannis Theodorou: It is, I would say it's not the number one reason they would do that. So usually from our vantage point, what we see driving governments to invest in digital systems is economic growth. Right, because as more and more sort of services and private sector are investing in websites and internet connectivity and offering things online, a digital ID can enable that kind of validation and verification of the ID of the person. You would need more transactions, more payments, more transfers, and that creates economic growth. Right, there are more jobs as well. So I think, you know, cost efficiencies from the government side, you know, a crack of fraud. I think there are a lot of stories around, you know, millions gone disappearing because people are, you know, fortunately, gaming the system to claim fraud, claim benefits. So having this kind of additional validation of someone's ID digitally, it would sort of, and it has in many countries led to reduce the welfare benefit fraud. And so, you know, it's going to be the ones that government use rather than interoperability components that will come into play more, I would say, in across

countries in the Global South that are neighboring. Because there's a lot of movement for jobs, crossing the border on a daily basis. So you need a way to allow these people to cross the border fast and without too much paperwork and time at the border.

Risks and Mitigation

I. Note 113: Stephen Matete, Senior Program Coordinator, IOM, Nigeria

Stephen Matete: As you know Nigeria is having over 200 million people but you can imagine just barely 100 million have so far been registered so we are having another close to another 100 million plus who are not within capture and do not have access to the offers that having access to the legal identity card can bear.

II. Note 130 and 131: Quelita Gonçalves, Head of Office, IOM, Cabo Verde

Interviewer: In your view, how can IOM collaborate with governments and other stakeholders to enhance efforts [to implement digital identity systems] already in place?

Ms. Gonçalves: IOM is one of the key players that can support governments quite easily to implement this type of modernisation and the introduction of digital legal ID at the global level. Because we're an IO we have access to many partners and donors. In countries where the government is underdeveloped, or in developing countries [...] it's super important that you have a partner that helps you achieve those types of big results for your country. That's why Cabo Verde managed to do that. [The digital identity system] is a super complex, heavily expensive system to put together. A biometric reader is super expensive, even 10,000 USD, and for one country you need many. It's a huge investment and in that regard IOM is definitely supporting the country to achieve it in a faster, more coherent way that is also respectful of international standards. This might be an added value for a partner like us.

Regarding legal identity, we have these two projects already implemented and closed: with the first one we managed to support the introduction of the new system to issue the new biometric card or residence permit; the second one served to digitize the [civil registry] archive as well as to launch a campaign to inform all the migrants about the benefits of having the residence permit. [...] The benefits [of having proof of legal identity] that we highlight [in the latest IOM's report on Cabo Verde] are to encourage everyone to regularize themselves, because they might need to reunite their family, they might need to leave the country and to visit their family – so there's no need to pay the fine if you have the the residence permit – so especially if they can also build their own house, they can request a bank loan and have their business so yeah there's quite good benefits for them and this is encouraging. Despite the fact that having a document would also give you more access even for a visa; for instance if they need to apply for a visa even for business in EU countries or US, they can with the resident permit.

We can as IOM advocate for special incentives that could benefit our diaspora from those three countries [Cabo Verde, Côte d'Ivoire, Senegal] to invest on trade and transportation in this corridor.

III. Note 131: Marco Pellegrini, Project Manager, IOM

Interviewer: How is IOM supporting the implementation of a digital identity system in Armenia?

Marco Pellegrini: As IOM here in Armenia we are supporting registration and identity management. Additionally, we are moving in the direction of the digitization of services and we are looking forward to eventually establishing digital identity with the State of Armenia, but we are not there yet. I'm confident it will

happen soon but we'll have to wait.

IV. Note 117, 120 and 139: Prerit Rana, Chief Executive, Agrasar (India)

Prerit Rana: COVID-19 has of course come with a lot of problems but it was also beneficial for digital inclusion. Before COVID-19, access to mobile phones for migrant workers was somewhere around 34%, but after COVID-19 their access rose to 98%. [...] Now, when there is more access to the hardware, there is a hope, but then the software—the whole interface—needs to be upgraded. The forms which are needed to be filled to access social security schemes and to open a bank account, for instance, are counter-intuitive. Even people who are very well educated struggle, it's not very well designed, it's not designed keeping humans in mind, especially the person we are talking about [migrants and other vulnerable groups, such as the elderly or digitally illiterate].

Interviewer: On the one hand, there seems to be no other option than digital ID; on the other hand, you talked about all the people who are being left out, and it got me wondering whether we'll be able to figure out how to protect those people, too, because they are oft already marginalized people who are being pushed further away.

Prerit Rana: There are more and more people coming to the so-called mainstream when we are using digital identity, but then where do we say that we are satisfied? We can always say that earlier 40% of the people were marginalized, while now only 20% are. But how about us agreeing that the 40% people previously marginalized had an option to get mainstream, while now the 20% don't, and there doesn't seem to be hope for them [at this stage].

A few decades back people used not to give too much importance to spellings of the names [in India]. Issues arose when it started getting translated into the digital system: some people now have different spellings for their names on different digital identity cards, which causes a lot of problems, but it is a very big challenge to change them, because with digital identity there is also a sort of black box situation: earlier, when there was no digital identity, people knew which was the office where they needed to go to get it fixed, but now the process to change it online—even though there is internet connection—is very complex. Then, when there is a problem, you are in the kind of situation where you are not able to get your child admitted into a school. In the past, because there was no digital identity, there were identity cards and you could always go to local leaders in the village—the headman of the village and municipal councilors—and get the spelling corrected. Now that is no longer possible because the system is centralized. Digital identity has led to a lot of centralization, which has benefits in terms of scale for the provision of Social Security, but it has also disconnected people from institutions and service providers. Unfortunately, we have witnessed so many situations where children are not admitted into school because they don't have proper identity cards.

Interviewer: How is the general perception about privacy risks, given that Aadhaar is not new to data leaks, and the threat of surveillance? Are people concerned about giving away their personal details to the national authorities?

Prerit Rana: When we ask this question to people, they say “What privacy?” – In our context it has become a philosophical debate. On one hand, people don't have any privacy, whole families are living in one room and children are not able to access school because it is a little far from their place, and even if they go to school they get beaten up because of racial issues, caste issues, and so on... So, in such a scenario, when we talk about privacy, they say that they need good food to eat, they need their children to study, so they are okay with giving up their data as they have nothing to hide. The widespread opinion is that it is the people who are privileged that have something to hide. On the other hand, people's data is being captured, [...] but there is not much transparency when it comes, for instance, to the health insurance industry, so how are the

people going to leverage their data for their financial progress, for increasing their financial revenue? People are not benefiting out of it. It looks like people will be just used as a data set.

So, if you look at both sides of the debate, [...] ultimately, when we see children who are not admitted into a school because they don't have a digital identity document or there is a problem with that, I find it very hard to be speaking against a digital identity looking at privacy and I don't think we have matured enough to be talking about it at this stage, it is too far fetched. Also, considering that digital identity is like identity you forget about the word digital: it is anyway identity so how can you be not very considerate about it?

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