



Digital ID in Nigeria

STATE OF THE INDUSTRY

List of Abbreviations

AfCFTA – African Continental Free Trade Area
AML/CFT – Anti-Money Laundering and the Combating the Financing of Terrorism
ATM – Automatic Teller Machine
AU – African Union
BVN – Bank Verification Number
CBN – Central Bank of Nigeria
CVV – Card Verification Value
Digital ID – Digital identity
EAC – East African Community
ECOWAS – Economic Community of West African States
EFT – Electronic Fund Transfer
FIRS – Federal Inland Revenue Service
FGN – Federal Government of Nigeria
FMARD – Federal Ministry of Agriculture and Rural Development
FRSC – Federal Road Safety Corps
GDP – Gross domestic product
GPS – Global Positioning Systems
INEC – Independent National Election Commission
KYC – Know-Your-Customer
LoA – Level of Assurance
MoD – Ministry of Defence
MSME – Micro, small, and medium enterprises
NASSP – National Social Safety Net Program
NCC – Nigerian Communications Commission
NGN – Nigerian Naira
NHIS – National Health Insurance Scheme
NIBSS – Nigeria Inter-Bank Settlement System
NIDB – National Identity Database
NIMC – National Identity Management Commission
NIN – National Identity Number
NIS – Nigeria Immigration Service
NPS – Nigerian Prison Service
PAN – Primary Account Number
PENCOM – National Pension Commission
PIN – Personal Identity Number
SADC – Southern African Development Community
SIM – Subscriber Identity Module
VAT – Value added tax
USD – United States Dollars
USSD – Unstructured Supplementary Service Data

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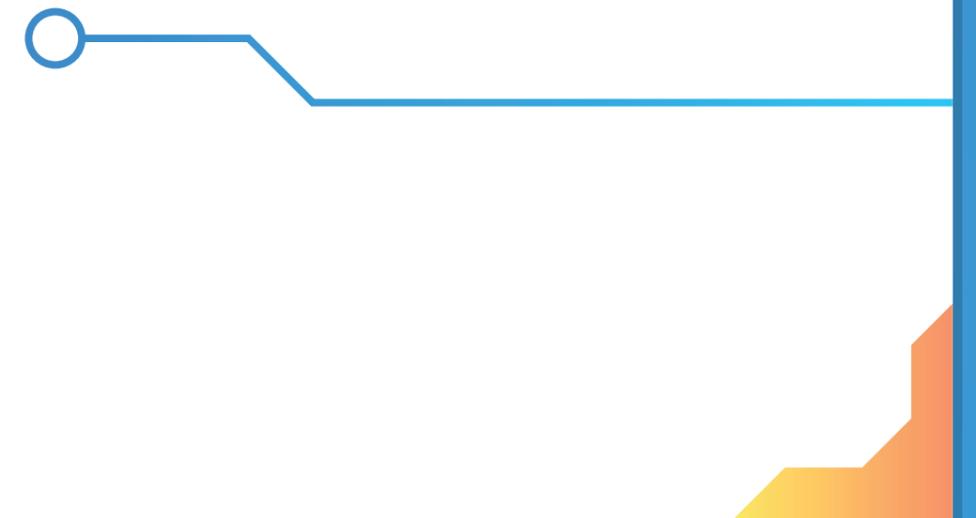
Acknowledgements

This is an independent report commissioned by VerifyMe and developed by Dalberg Advisors between July 2021 to November 2021. It represents a stock-taking of the state of and opportunities within the digital ID and eKYC industry in Nigeria and the beginning of what we hope will be a recurring assessment of progress and new developments year-on-year.

We would like to thank all the stakeholders from across government, private sector, and civil society – in Nigeria, Africa, and globally – who were gracious with their time and inputs throughout the research process. A particular thank you is extended to the office of the Director General at the National Identity Management Commission, industry peers who continue to collaborate with VerifyMe on furthering this conversation, and those invested and involved in various capacities in advancing the landscape. We look forward to continuing the discourse.

This report was prepared by an independent advisory team from Dalberg Advisors. The team comprises Layusa Isa-Odidi, Robin Miller, Amu Muyanga, Keshinee Shah, and Chandni Sahi.

We welcome your feedback on this report and encourage you to reach out to the Dalberg team with your comments through www.dalberg.com.



Foreword

Approximately 600 million children are vulnerable and over 1.7 billion adults worldwide are unable to open a bank account, purchase a SIM card, or vote. In the digital age, the lack of identification is a barrier to full economic and social inclusion. This has driven the global digital identity revolution where innovations are being developed to register individuals at scale and provide an infrastructure for trusted verifications of those identities for private and public services.

In Africa, digital identity is changing the way we transact and ultimately how we live. It is the key to ensuring social and financial inclusion, business confidence for transacting and economic advancement. Open banking and open finance will soon become the foundations for inclusive and sustainable economic development and individual empowerment across the African continent. To fully capitalise on the digital revolution, it is critical that we unlock the full potential of our digital economy and accelerate our full transition to the advanced digital identity system, which will underpin our finance technology.

As an identity and KYC company that is helping to solve the problem of financial inclusion, we see the digital identity space not just as a business but as a critical aspect of sustainable development and financial inclusion in Nigeria and Africa. We see the partnership with Dalberg, a leading consulting firm with impact and sustainable development at the core of its business model, as critical. Not only does the Digital ID in Nigeria: State of the Industry report provide a comprehensive snapshot of the Nigerian digital identity ecosystem, but we also believe it will promote standardisation and build capacity and collaboration within the Nigerian industry.

In 2016, our experience in the identity space led us to set about building a digital KYC and addressing infrastructure in Nigeria. We saw first-hand the high cost of transactions, particularly in financial services, because of the unavailability of systems to establish trust with individuals. Pioneering startups in Nigeria, such as VerifyMe, have taken the opportunity to solve problems in the digital identity and KYC space. Along with other

innovators, we have developed the digital identity and KYC infrastructure in Nigeria, and it is evolving rapidly.

This report examines digital identity systems in Nigeria and explores the role of digital identity as a critical and foundational enabler for a range of services and transactions, including financial services, social welfare programmes and government services. It seeks to shed light on the various stakeholders in the digital identity ecosystem and provide insight into interactions between the business community, the government, and regulatory authorities. It also identifies the potential barriers to universal digital identity coverage in Nigeria.

The participation of identity industry companies, regulators, customers, and other ecosystem players that have enriched the findings of this report is a testament to the increasingly collaborative nature of the Nigerian digital identity ecosystem. We look forward to continued partnerships and discourse and to continue making contributions towards accelerating the Nigerian digital identity industry and ultimately ensuring inclusive and sustainable development in Nigeria and across the region.

Our hope is that the report will empower all Nigerians and Africans with information that will further accelerate the region's digital transformation agenda.

Esigie Aguele, CEA

Co-founder & CEO
VerifyMe Nigeria Limited



Nigeria is increasingly going digital

Nigeria's digital economy contributes significantly to national gross domestic product (GDP) and productivity.¹



Studies by the International Data Corporation estimate that as much as **65% of the world's GDP will be digitised by 2022.**



Worldwide, an estimated **USD 8.6 trillion** will be channelled directly into digital transformation agendas between 2020 and 2023 alone.³



Nigeria's digital economy (information and communication technology) sector contributed almost **18% to real GDP in the second quarter of 2021.**²



The Nigerian National Digital Economy Policy and Strategy (2020-2030) lays out plans to **double the digital ecosystem's contribution to the economy by accelerating the pace at which digital technology comes to mediate person-to-person, person-to-business, and person-to-government transactions and interactions.**



The digital economy's share of Nigeria's real GDP will continue to grow, according to data from Nigeria Inter-Bank Settlement System Plc (NIBSS) on online commerce trends and the growing number of technology companies with roots and operations in Nigeria – some of which, like Flutterwave and Interswitch, are already unicorns – as well as plans and projections laid out in the Federal Ministry of Nigeria's National Digital Economy Policy and Strategy (2020-2030).

Nigeria has demonstrated leadership and early success in advancing its digital economy. However, unlocking the full social and economic potential of the digital economy requires continued investment in enabling infrastructure – such as digital ID – which can help to advance greater access to, and safe participation within the economy.

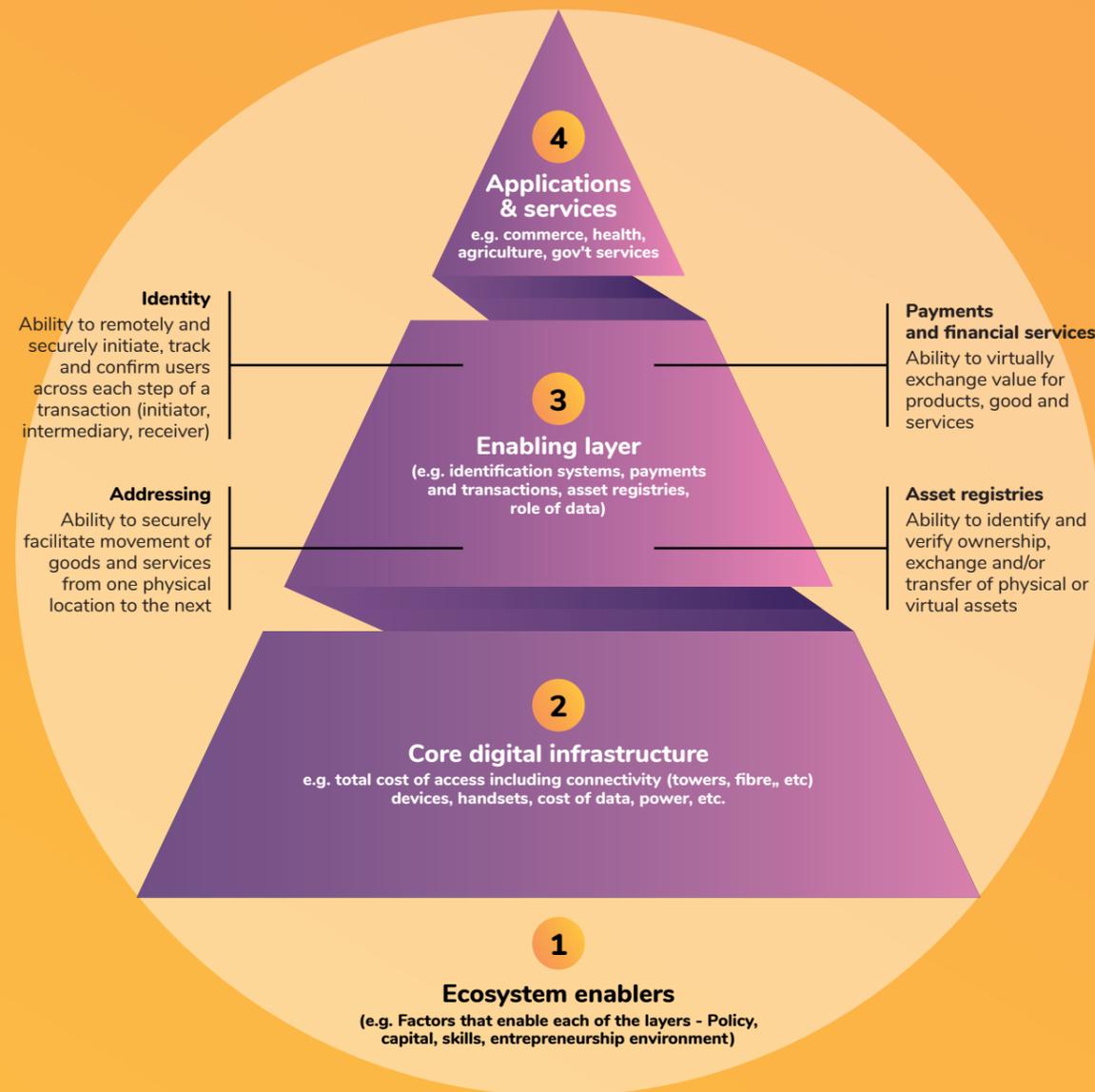
¹ Ministry of Communications and Digital Economy, strategic vision plan for 2021-2025, 2021

² Ibid

³ International Data Corporation, IDC FutureScape: Worldwide Digital Transformation 2021 Predictions, 2020

Building and growing an inclusive digital economy requires continuous investment in infrastructure, applications and services and the broader ecosystem for access to talent, capital and an operating environment that enables innovation. Along side these investments is a need for continuous investment in the platforms, products and services that both enable return on investment for infrastructure and drive continuous expansion of addressable market, described in the figure below as the ‘enabling infrastructure’.

Framework for building inclusive digital economies



Digital identity is a critical enabler



An identity answers the question, “Who are you relative to a subset of legitimate, verifiable institutions such as the state, a formal family structure, or an address/geolocation system?”. By way of illustration, “Person X is a citizen of city A in country B, was born on this date, lives at this address, has this fingerprint, and is married to Person Y in a customary union”.



A digital identity securely captures, stores, and retrieves these attributes as a set of digital data linked to a credential like an identity number or card used to authenticate the unique person affiliated with the data.

The benefits of identity systems are not new; however, if designed and governed well, digital systems offer an opportunity to increase



- 1 **access** – by offering greater agency and opportunity to more individuals across an economy;
- 2 **efficiency** – by reducing overall administrative costs of maintaining the system;
- 3 **visibility** – by offering the possibility of including information on dynamic attributes like physical location; and
- 4 **value across the economy** – by more quickly and securely providing information to a greater number stakeholders working responsibly to increase access to social services, products, and benefits.



An inclusive digital ID is one that ensures universal access for individuals; removes barriers to access and use; establishes a unique, secure, and accurate identity; creates a responsive and interoperable platform; uses open standards and prevents vendor and technology lock-in; protects privacy and agency through system design; plans for financial and operational sustainability; protects personal data, maintains cyber security, and safeguards people’s rights through a comprehensive legal and regulatory framework; establishes clear institutional mandates and accountability; and enforces legal and trust frameworks through independent oversight and adjudication of grievances.⁴

4 World Bank, Principles on Identification for Sustainable Development: Toward the Digital Age, 2017

Digital ID's main advantages relative to other legacy systems



Digital IDs hold potential to create additional socioeconomic value via increased reach and inclusion.

A World Bank study found that, by 2030, digital ID could add up to 7% of current GDP to Nigeria — mostly through extending digital cash flow and banking tools to informal micro-businesses and by reducing tax fraud through improved digital record keeping and collection.⁵



Digital IDs offer important layers of security for key sectors.

Relative to analogue IDs, digital IDs can provide additional levels of assurance (LoA) based on

- who or what a person is biologically via an iris, face, or voice print;
- what a person knows, such as like a password, passphrase, or personal identity number (PIN);
- what digital assets a person has, such as a smartcard, security token, mobile phone, or SIM card;
- and what a person does, as in how they make keystrokes, sign a digital signature, or exhibit online behaviour patterns.



Digital IDs offer opportunities to further strengthen the delivery of other products and services

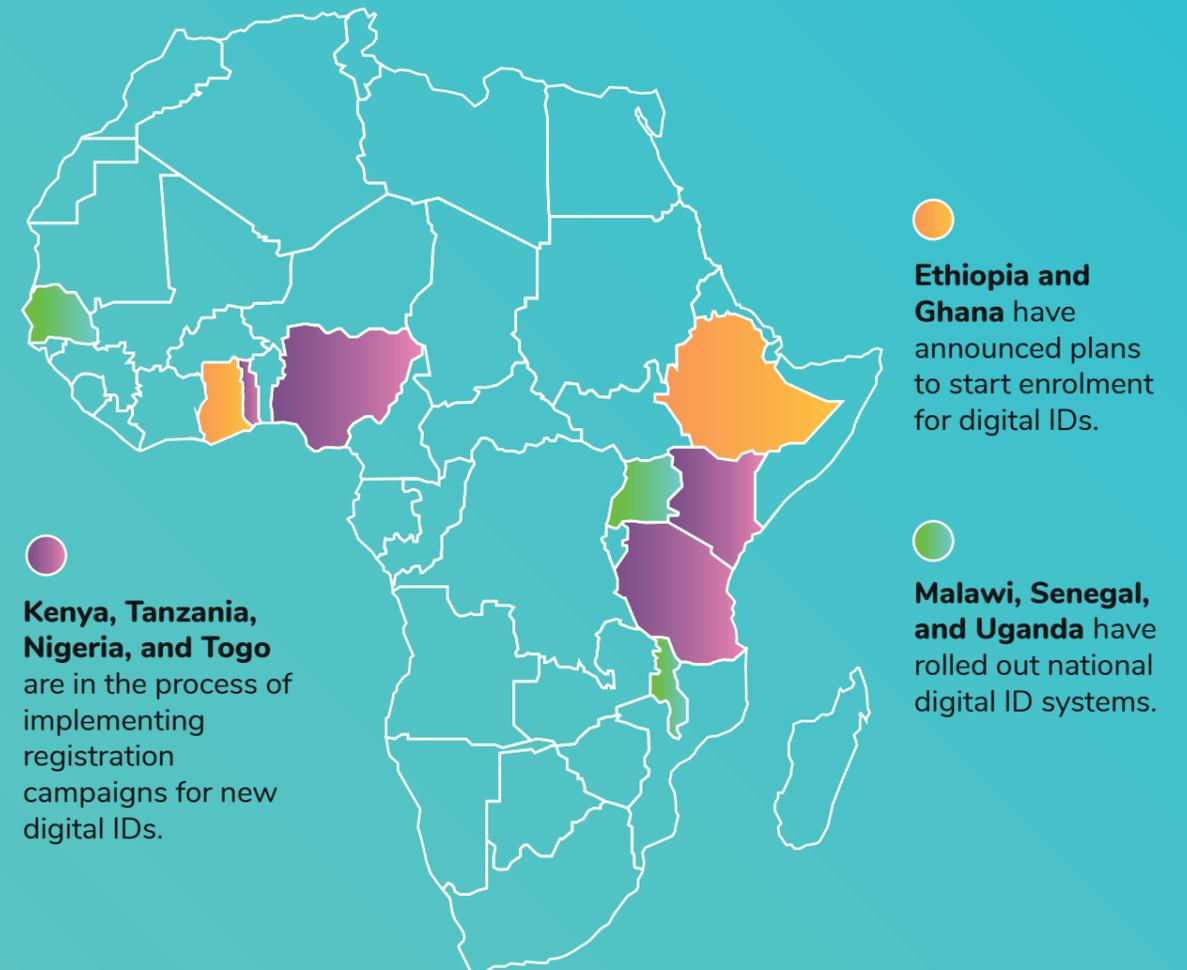
Across a broad set of use cases, digital ID is more expansive in how it can reliably certify that one is who they claim to be - it can apply to a broader set of use cases and reach people that traditional analogue IDs cannot.⁶

⁵ World Bank, Public sector savings and revenue from identification systems: Opportunities and constraints, 2018
⁶ World Bank ID4D, Technology Landscape for Digital Identification, 2018

Digital ID in Africa

Recognising this potential, policymakers across sub-Saharan Africa are increasingly investing in digital transformation initiatives, including digital identification systems.

The African Union has digital ID and good principles for digital ID as stand-alone pillars of its digital transformation policy for Africa, including multi-country digital IDs that can be used across borders at least within regional blocks like the Economic Community of West African States (ECOWAS), the Southern African Development Community (SADC), and the East African Community (EAC) in efforts to advance regional trade and travel per the African Continental Free Trade Agreement (AfCFTA).



Digital ID in Nigeria

Nigeria, like most countries, operates both a foundational ID system concerned with accounting for the population overall, and functional IDs, used to demonstrate eligibility for certain services or entitlements like voting or driving.

Foundational ID systems are synonymous with national IDs issued by the government and are used by people to demonstrate legal status (for example, citizen, resident, visitor, refugee, asylum seeker).

Functional IDs facilitate identifying and authorising people's eligibility for specific use cases (for example, health insurance beneficiary, national matriculant exam taker, driver, voter).



Nigeria's digital identity ecosystem is based on the foundational identity of a **National Identity Number (NIN)**, which the government intends to make the central, most widely used form of identity.



The NIN is a unique identifier issued to all Nigerians who register. It requires enrolment at one of 10,000 NIMC centres, which are somewhat concentrated in city centres and the South.⁷



Currently, **15%** of Nigerians have both an e-ID card and a NIN while **~30%** have a NIN (66m) but not e-ID card⁸ (the physical token linked to the NIN).



At last count, approximately **500m Africans** had no form of recognisable legal identity.⁹ Additionally, **over 100 million Nigerians**, or a little less than **half the population** do not have any form of recognised ID, including other non-NIN ID.



This means roughly **40%** of the continent and **50%** of the country, respectively, lack an **integral enabler** of benefits such as accessing a financial product, voting, or participating in online marketplaces.

The country is undergoing a multi-year harmonisation effort to connect data from various government agencies' identity datasets to NIMCs National Identity Database (NIDB).¹⁰

There are at least **19** agencies that will be connected to the NIN upon full harmonisation, which presents a remarkable opportunity to dramatically reduce the cost of identity management on a governmental level through the integration and interoperability of databases across various agencies and departments.¹¹ The harmonisation framework is well-designed and makes provisions for clear linkages between functional ID systems and the NIDB in ways that do not compromise personal data via unauthorised use.

⁹ World Bank, Identification for Development – "1.1 Billion 'Invisible' People without ID are Priority for new High Level Advisory Council on Identification for Development", 2017

¹⁰ National Identity Management Commission, Presentation at 2021 National ID Day, 2021

¹¹ These include the Central Bank of Nigeria (CBN) that operates a registry of people who use banking services, the Independent National Election Commission (INEC) that operates a registry of people who are eligible to vote, the National Communications Commission (NCC) who manage a registry of mobile phone users, the National Health Insurance Scheme (NHIS) that run a registry of people who subscribe to health insurance, the Federal Inland Revenue Service (FIRS), who run a registry of people for taxation, the Joint Tax Board (Customs) that operates a registry of people for excise and custom duties, the National Pensions Commission (PENCOM) that holds a registry of people entitled to pension by the FGN, the National Social Safety Net Project (NASSP) which maintains a registry of poor and vulnerable people in Nigeria, the Federal Ministry of Agriculture and Rural Development (FMARD) that operates a registry of farmers entitled to agriculture benefits from the FGN, the Ministry of Defence (MoD), the National Immigration Service (NIS) that keeps a registry of people with a valid passport or travel document, the Federal Road Safety Corps (FRSC) that works with a registry of drivers, the Nigeria Prison Service (NPS) which operates a registry of prisoners, both past and present, and the Nigeria Police Force (NPF) which operates a registry of people in conflict with the law.

⁷ National Identity Management Commission, Presentation at 2021 National ID Day, 2021

⁸ National Identity Management Commission, Presentation at 2021 National ID Day, 2021

Alongside the government's national harmonisation push, the private sector is working to close the credibility gap in ways that add immediate value to users.

Private companies typically occupy five key roles



Hardware and software providers

Private companies like MasterCard, CryptoVision, and USG technologies provide the hardware that the ID system runs on.



Identity verifiers

Companies like Carbon IVS, iDentity, Smile Identity, and Lexis Nexis also act as partner vendors to the state by verifying NINs, Bank Verification Numbers (BVN), and driver's licenses for access to goods and services.



Enrolment partner

A collection of private digital ID companies in Nigeria like VerifyMe are applying their time and resources to advancing universal coverage. Around 200 private sector partners are licensed to enrol users on a pay-per-capture basis.



Service providers

Entities like banks (Kuda Bank, Branch International), telecommunications companies, travel companies, and e-commerce stores use digital identity to provide goods and services to customers in ways that are compliant with the law's know-your-customer (KYC) requirements using vendors such as Shufti Pro.



Innovators

Private companies are also at the forefront of innovating around a range of challenges and opportunities (e.g., VerifyMe and YouVerify). They (i) contribute to solving structural challenges like vague addressing systems; (ii) develop new ways to support large industries like financial services with their KYC and compliance requirements, customer onboarding and remote account creation; and (iii) support the labour market by enabling rapid background checks for recruiters and employers.

Challenges to digital ID uptake in Nigeria

Nigeria's considerable population—almost half of which holds no legal form of ID—as well as its many existing legacy functional ID systems together pose a unique set of challenges to achieving universal coverage with digital ID.

- ▶ **Users have limited incentives for uptake.** Most residents find enough utility in the functional IDs they already own and are able to access the goods and services they consider essential.
- ▶ **Consequences for not enrolling in digital ID have been loosely enforced.** Nigeria has mandated that SIM cards be linked to NINs in order to continue mobile phone service, and that BVNs be linked to NINs in order to maintain a bank account. Enforcement, however, has been lenient.
- ▶ **The enrolment process is perceived by some to be too lengthy, and entry points are not streamlined.** Current entry points into the digital ID system do not yet follow a streamlined identification lifecycle that connects the civil registry to the NIN. For example, birth records could convert into a NIN by simply adding attributes like biometrics, photograph, and digital signature when people turn 16 or sit for matriculation exams, enrol in national health insurance, or register to vote.
- ▶ **Enrolment centres are concentrated in city centres, which poses a challenge to reaching the country's 48% rural and peri-urban population.**
- ▶ **More men than women are enrolled in digital ID in most areas of Nigeria.** Gendered cultural norms and divisions in labour, access to funds, and access to transport likely play a role in this discrepancy.
- ▶ **Lack of interoperability across legacy functional IDs currently prevents enrolment with a user's functional ID of choice or convenience from also populating the NIDB.**
- ▶ **Attempting to retroactively harmonise datasets—as NIMC is at presently trying to do—raises concerns about data integrity.** Neither telecoms nor voter data is AML compliant, as the identities they issue are not unique and can be easily duplicated across multiple locales. Similarly, one can register multiple SIM cards using various combinations of ID data like address or marital status.

The Digital ID opportunity

While there are many potential use cases, this report explores the untapped potential for digital ID in Nigeria to enable three key sectors



Financial services

Increased uptake of digital ID can enable financial service outcomes concerning innovation, compliance, and inclusion.



Successful interoperability between key data sets, mainly the NIN and BVN, can enable broader segments of the currently less understood and underserved population and business community to be included and accounted for.



Digital ID is a critical enabler for financial institutions looking to break ground in new markets while staying compliant with KYC requirements mainly in digital banking, microlending, and insurance.



The opportunity lies in being able to generate economic value through reduced money laundering, reduced fraud, and increased capacity for innovation. More fintech applications can acquire and serve larger volumes of customers while staying compliant. Kuda Bank, Nigeria's first fully digital bank, already has 13M retail customers after just 4 years of operation, demonstrating significant demand and growth potential.



Commerce

The COVID-19 pandemic increased the online trade of many consumer goods. As the potential of eCommerce is further realised by a growing, young, digital-native consumer base – online transaction numbers will continue to rise. Three key components to unlocking online trade include the ability to identify and verify customers, the ability to pay for goods and the ability to deliver those goods reliably.



NIBSS reports that online instant payments or goods across all associated banks are steadily increasing.



Nigeria is Africa's 2nd and the world's 25th largest e-commerce market. E-commerce spending is estimated at USD 12 billion and is projected to reach USD 75 billion in annual revenues by 2025.¹² According to the Nigeria Inter-Bank Settlement System (NIBSS), Nigeria processed NGN 58.8 trillion (USD 155 billion) worth of electronic transactions between January and March 2021.¹³



Offline, cross-border supply chains across ECOWAS and the continent also rely on robust ID systems for logistics, payment, and taxation processes, making ID an important component of commerce even beyond the online retail level.



In addition to goods, people also find, carry out, and get paid for labour online. Remote working has become not only the norm during the pandemic, but a method to ensure that physical distances do not restrict talent pools. Entire employment lifecycles are moving online – from recruitment, interviewing, employment history and background checks, qualification verifications and onboarding to payroll, income tax, benefit package linkages, and internal data and systems access.

¹² United States International Trade Administration, Nigeria – Country Commercial Guide, 2021

¹³ Nigeria Inter-Bank Settlement System, NIBSS Insight: Fraud in the Nigeria Financial Services, 2021



Government services

Serving constituents requires knowing them and their need profiles. Digital ID can accelerate the rate and scale at which the government can understand its country's data across health, education, safety, migration, and social security and set development targets for each of those priority areas.



Up-to-date data is important for planning, rolling out, and measuring the impact of national social resilience interventions, such as:

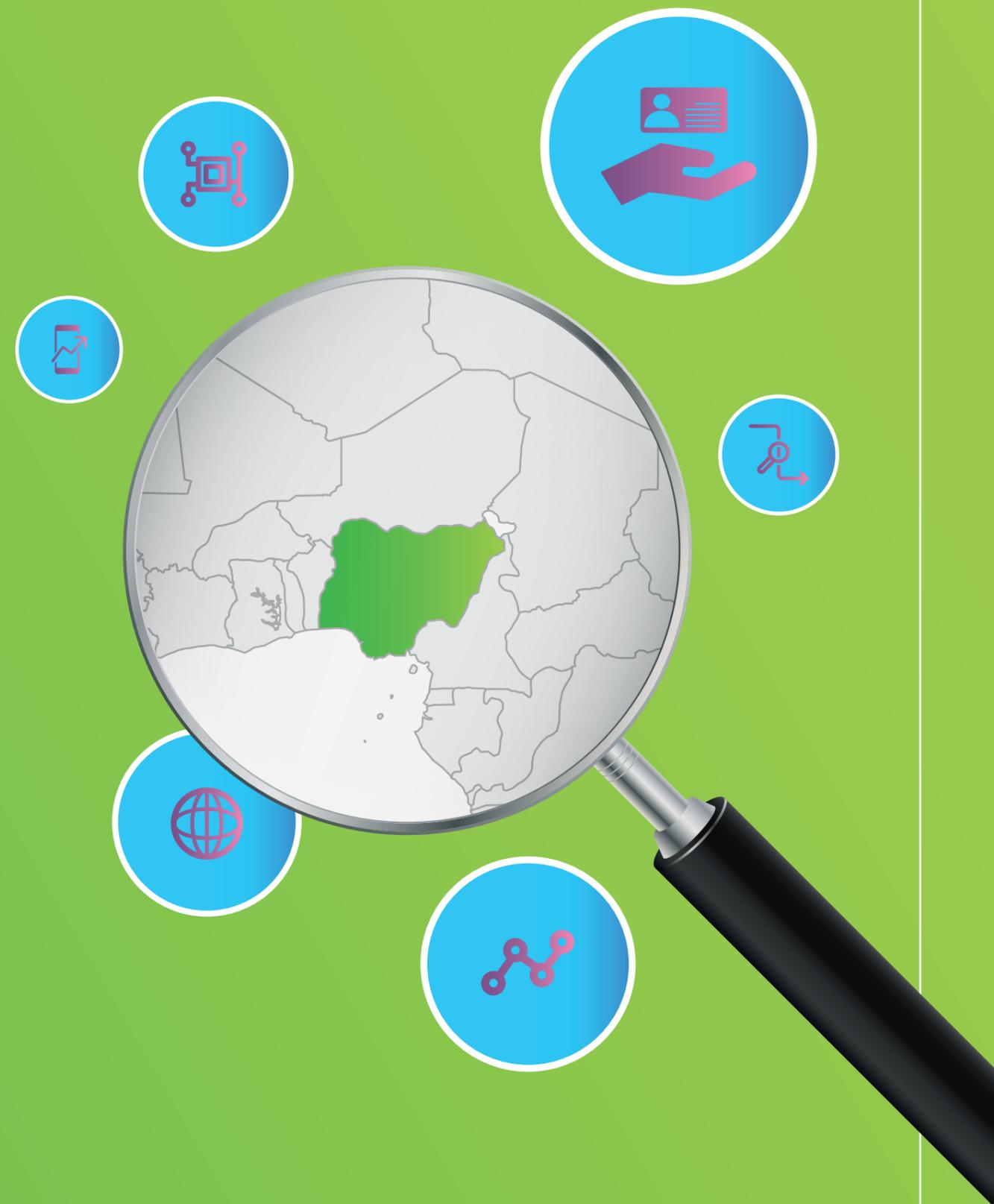
- National Health Insurance
- National Pension Management
- The Federal Survival Fund¹⁴ to help MSMEs meet their payroll obligations during the pandemic; and
- The individual-level Targeted Credit Facility,¹⁵ which supported households in Lagos during the early months of lockdown.



Government services such as issuing driver's licences, holding elections, certifying business registrations, and administering matriculation examinations and qualifications rely on functioning identity systems. Digitisation can make these systems more efficient by reducing the government's costs and sparing residents the time and expense of collecting, authenticating, and delivering in person the various documents required by analogue identity systems.



Additionally, digital ID has the potential to enable better taxation enforcement, increase revenue, and, therefore, the improve state's ability to serve its constituents.



¹⁴ Federal National Survival Fund, Welcome to FG MSME Survival Fund Program, n.d.

¹⁵ The Africa Report, Nigeria introduces stimulus package to ease coronavirus hit, 2020

Continuing to realise the benefits of digital ID will hinge on five key recommendations



Opportunities exist to more intentionally link digital economy, financial inclusion, and digital ID regulation in order to mutually reinforce policies and implementation plans. In particular, there is untapped potential for productive overlap across the Central Bank's drive for an increasingly cashless economy, AML/CFT policy, and the advancement of inclusive digital ID under NIMC.



Nigeria can continue to adopt an approach that leverages existing legacy systems in terms of workflows and technology. This includes assessing which forms of functional ID have the largest user bases, identifying pockets of value, and prioritising connecting them to the NIDB and NIN next in the roadmap



As a technology leader in Africa, Nigeria is well positioned to continue aligning innovation and regulation by linking the experience of industry leaders and entrepreneurs with the shaping of policy environment. Regular dialogue and active, managed experimentation and collaboration between public and private sector can allow both sides to understand where interests align and how, by unlocking points of friction, greater, more inclusive growth can be possible.



Policymakers can continue to find ways to align the interests of both public and private stakeholders when rolling out and enforcing regulation. The proverbial 'carrot and stick' can be achieved by both seeking out opportunities to incentivize new behaviors, through engagement in public awareness and mechanisms that unlock demand. Equally, measures requiring stronger 'stick' enforcement can be even more effective by carefully navigating penalties alongside potential intended consequences that impede long-term user trust in the digital economy overall.



Government and private sector can continue to design and shape collaborations in order to leverage data from digital identity systems that advances the public good. By aggregating and anonymizing certain datasets, both government and the private sector can actively contribute to building and shaping a more robust data ecosystem that can serve both social and economic agendas.

Introduction



The digital world is an ever-expanding, global ecosystem that has become an intrinsic part of everyday life. Technology and data science continue to transform the way Africans live, work and evolve in the 4th industrial revolution - characterised by the fusion of the digital, biological, and physical worlds.¹⁶ Increased innovation in technology is creating dynamic means of unearthing and delivering vital information to policy and decision-makers, innovators, and scholars, enabling the creation of new industries and jobs, and lowering the barriers and overall costs of delivering goods and services for the public, private, and civil society sectors. The continent's technology transformation story is marked by wide proliferation of mobile devices and rapidly increasing internet access. Further, there is a significant data opportunity as innovators mine context-specific data sources to inform everything from credit scores for increased financial inclusion to remote health diagnoses to reach rural and underserved populations. If African policy leaders and businesses continue to invest in digitalisation across infrastructure, middleware, and skills - it is expected that the increased productivity will generate an additional USD 180 billion in economic output for the continent by 2025 and USD 712 billion by 2050.¹⁷

In line with this trend, Nigeria's digital economy presents great opportunity, with the country's information and communication technology sector contributing almost 18% to real gross domestic product (GDP) in the second quarter of 2021.¹⁸ Ambitions to sustain and expand this contributing rely on finding new ways to securely place technology

at the intersection of more transactions and interactions between individuals, businesses, and governments.¹⁹ Globally, estimates are that as much as 65% of the world's GDP will be digitised by 2022, with USD 8.6 trillion estimated to be channelled directly into digital transformation agendas between 2020 and 2023 alone.²⁰ The anticipated volume of financial, information, and other digital asset flows across public and private spheres is cause for excitement due to the innovation and efficiency gains digital has the power to drive.

A number of frictions must still be addressed to build a digital economy that is inclusive and secure. These include frictions that hold back opportunity and frictions that jeopardise the safety and security of the system at scale. Working to resolve these is important for upholding the stability and security of the industries and country contexts in which the technology operates and encouraging user trust and willingness to engage with the technology.

As we look at the emerging pathways to digital transformation across Africa and around the world, we observe a critical enabling layer that helps reduce friction in unlocking new markets, supports the protection of customers and users, and increases the systems' overall trust. This enabling layer includes a mix of services and solutions that ensure that digital interactions happen in secure and credible ways. At a minimum, these include asset registries, secure payment processing systems, addressing systems, digital data and cybersecurity protections at a policy level, and digital identities (digital ID).



¹⁶ Brookings Institute, Foresight Africa 2020 Report, 2021

¹⁷ International Finance Corporation and Google, e-Economy Africa 2020: Africa's \$180 billion Internet economy future, 2020

¹⁸ Federal Ministry of Communications and Digital Economy, National Digital Economy Policy and Strategy (2020-2030), 2019

¹⁹ Ibid

²⁰ International Data Corporation, IDC FutureScape: Worldwide Digital Transformation 2021 Predictions, 2020



Asset registries offer the ability to virtually recognise, track and assign ownership of assets.

These are vital to ensuring that both physical and cyber goods being traded indeed belong to those trading them.



Payment processing systems offer the ability to securely facilitate the exchange of currency for goods and services.

Secure payment processing systems allow for money exchange within and across borders and exchange rates.



Addressing systems offer the ability to facilitate the movement of goods and services across and within borders.

These facilitate goods and services reliably reaching their intended recipients, even in regions where address schemas are vague or do not match typical formats used in Global Positioning Systems.



Digital identities (Digital ID) offer the ability to credibly identify the users on both ends of the virtual transaction.

Facilitates knowing and trusting who one is interacting with in the absence of in-person verification, allows financial institutions to meet Know Your Customer requirements as part of overall national fiduciary health and enables the government to monitor, track and evaluate development across migration, employment, education, health, and other policy areas.

At its core, an identity is a set of data that describes a unique individual or entity and its relationships to institutions like citizenship or family. An effective identity answers the question, “Who are you relative to a subset of legitimate, verifiable institutions such as the state, a formal family structure, or an address/geolocation system?” By way of illustration, “Person X is a citizen of country A, was born on this date, lives at this address, and is married to Person Y in a customary union.” If someone then claims to be Person X, all the above attributes need to be true. The way to prove this includes producing digital or physical proof of the above attributes such as a sworn declaration by a local authority bearing Person X’s name, a municipal bill, or a marriage certificate. However, each of these may be valid only in certain jurisdictions, for specific time periods, or have low levels of consistency, and therefore reliability, across different geographies and use cases. This inconsistency can mean people need to obtain and carry multiple forms of proof of identity to improve their chances of accessing the goods and services they require.

There are four main actors to whom most people need to be identifiable: (i) the government, (ii) certain private service providers, (iii) employers, and (iv) other private individuals with which one is transacting. The government has a monopoly on foundational legal identity and is oftentimes the ultimate authority for answering the question of who someone is, usually relative to itself (for example, citizen, permanent resident, visitor, taxpayer, or social security beneficiary). Governments use this information to manage their democracies, for instance, through enshrining voting rights to citizens, allowing people to seek justice in a court of law, managing criminal justice records, and funding itself through tax collection. Digital IDs also offer governments more streamlined ways to track and evaluate how they serve their constituents of different demographics and geographies across migration, employment, education, health, and social security.

Private service providers in both digital and brick-and-mortar businesses need to verify the identity of their customers for a myriad of reasons. Financial service providers²¹ are subject to Know Your Customer (KYC) requirements that verify a potential user’s identity to varying degrees in compliance with legislation on Anti-Money Laundering and the Combatting of Financial Terrorism (AML/CFT), managing commercial risk, and the combatting of other financial crimes. Enforcing age restrictions on labour, travel, certain age-restricted social media sites, or retail purchases such as alcohol also rely on trusted identity systems to verify birth dates in line with the Cybercrimes (Prohibition and Prevention) Act’s provisions for 6 Including but not limited to banking, insurance, credit, investments, advisory, and audit protecting minors. Similarly, companies that deal with international travel and tourism or imports and exports use identity systems to help them comply with the National Immigration Service and the Nigeria Custom’s Authority tracking and reporting requirements, respectively.

Employers rely on identity systems to perform background checks, particularly in fields that require high levels of trust, such as domestic work, working in national security, or performing work that needs specific credentials such as being a doctor or pilot. Even on a peer-to-peer level, transacting securely is best with the assurance of knowing precisely what person or company is on the other side. This is useful for verifying ownership

As we look at the emerging pathways to digital transformation across Africa and around the world, we observe a critical enabling layer that helps to reduce friction

²¹ Including but not limited to banking, insurance, credit, investments, advisory, and audit

of goods being traded, sending and receiving funds, or needing to file a complaint with a small claims court for non-payment or receipt of damaged goods or property. Landlords and their tenants, small business owners and their customers, and people making direct sales of valuables like cars are examples of everyday individuals that effective legal identity stands to benefit in this way.

The proposed benefit of identity systems is not new. Still, the promise of digital seems to suggest the potential to manage identity more efficiently on a national level for both public and private sectors. Digital ID technology requires a one-time upload and verifications of the physical data (like a marriage certificate) and either (i) stores the identity data in a single, secure digital repository; or (ii) utilises an always-on connecting call that can quickly collate the appropriate digital data from multiple respective digital repositories (for example, from different government registries) on-demand via an application programming interface (API). Once one has an authenticated digital identity, they are issued a credential such as an ID number and ID card that consolidate all the major aspects of one's legal identity and becomes the universal proof of identity.

Digital IDs hold the potential to create additional socioeconomic value via increased reach, security, and inclusion. A multi-country study focused on the value of digital ID in seven focus countries found that by 2030, digital ID could add up to 7% of current GDP to Nigeria - primarily through extending digital cash flow and banking tools for informal micro-businesses and reduced fraud in taxation due to improved digital record keeping and collection. This is compared to 6% in Ethiopia, 4% in the United States, and 3% in the United Kingdom.²² Digital IDs offer important layers of security for key sectors such as financial services, government services, and trade. Relative to analogue IDs, digital IDs can provide additional levels of assurance (LoA) based on who or what a person is biologically

via an iris, face, or voice print; what a person knows like a password, passphrase, personal identity number (PIN); what digital assets a person has such as a smartcard, security token, mobile phone, SIM card; and what a person does, as in how they make keystrokes, sign a digital signature, or exhibit online behaviour patterns. Because digital ID is more expansive in how it can reliably certify that one is who they claim to be, it can apply a broader set of use cases and reach people that traditional analogue IDs cannot.²³ Digital ID can also strengthen the delivery of other products and services, including ease of onboarding and authenticating users, reducing incidences of spoofing and account hacking, real-time fraud monitoring and detection, and age verification.

This report adds to a rich discourse on the role of foundational identity as a facilitator of a wide range of interactions between individuals, businesses, and governments and how digitalisation amplifies the power of that facilitator function

Recognising the importance of identity systems overall and the potential of digitalisation to enhance the value proposition, policymakers across sub-Saharan Africa are increasingly investing in digital technology, including digital identification systems. There is precedent around the continent: Malawi, Senegal, and Uganda have rolled out national biometric ID

²² World Bank, e Public sector savings and revenue from identification systems: Opportunities and constraints, 2018; McKinsey, 2019

²³ World Bank Identity 4 Development, Technical Standards for Digital Identity, 2017

systems while Kenya, Tanzania, Nigeria, and Togo are implementing registration campaigns for new digital IDs, starting with biometrics. Additionally, Ethiopia and Ghana have announced plans to start enrolment for digital IDs. The African Union has digital ID and Good Principles for digital ID as standalone pillars of its digital transformation policy for Africa, including multicountry digital IDs that can be used across borders at least within regional blocks like the Economic Community of West African States (ECOWAS), the Southern African Development Community (SADC), and the East African Community (EAC) in efforts to advance regional coordination, trade, and travel per the African Continental Free Trade Agreement (AfCFTA). Advancing digital ID is evidently a priority amongst African governments who want to ensure that their digital transformation agendas are underpinned by systems that enhance trust and security. Nigeria is no different.

This Industry Report focuses on national-level digital ID systems as an instrumental enabler of trust in the digital economy and as a regular feature of multiple African governments' digital transformation agendas.

This report adds to a rich discourse on the role of foundational identity as a facilitator of a wide range of interactions between individuals, businesses, and governments and how digitalisation amplifies the power of that facilitator function. The paper uses Nigeria's digital ID ecosystem to highlight how the interplay between public and private sectors can spur new, more efficient ways of serving end users in financial services, eCommerce, and government services. The report also explores barriers and opportunities to reaching universal digital ID coverage in the context of Nigeria, the first country in the world to observe National ID Day at a federal



level. Since 2019, the federal government has brought together actors from the Office of the President of the Republic, the National Identity Management Commission, the Ministry of Communications and Digital Economy, and other key public and private actors to mark and plan for continued progress in advancing the digital ID project. In light of this demonstration of the high priority and proportionate level effort afforded to identity in the digital transformation agenda, this report seeks to help drive the thinking further.

Understanding the potential of Digital ID



Nigeria, like most countries, operates both a foundational ID system concerned with accounting for the population overall and a functional ID system used to demonstrate eligibility for certain services or entitlements like voting or driving. Foundational ID systems are synonymous with national IDs issued by the government and are used to confer legal status (for example, citizen, resident, refugee, or asylum seeker). On the other hand, functional IDs mainly identify and authorise people's eligibility for specific use cases (for example, health insurance beneficiary, national matriculant exam taker, driver, voter). Before 1 September 2015, when obtaining a National Identity Number (NIN) from the National Identity Management Commission (NIMC) became mandatory by law, enrolment for each type of functional ID in Nigeria was a standalone process.²⁴ This meant that the identification people enrolled for and continue to hold varies widely depending on the services relevant to their lives. One might only have a state-level voter's ID, while another holds a national driver's license, and another a domestically and internationally recognised passport. Another, all three. Such an identity ecosystem means multiple siloes of often duplicate data are housed by various government agencies. For users, repetitive enrolment processes where one submits the same data multiple times incur avoidable time and financial costs. For different identity issuers within the government, the costs of maintaining independent siloes are duplicative across infrastructure, human resources, and technological systems.

Digital ID seeks to connect identity data systems with one's foundational identity at the core, augmented by layers of additional data that stakeholders can access digitally with the right permissions. Basic digital ID allows for validation and authentication of an identity by querying the national, foundational ID system for a "yes" or "no" answer to verification questions such as "Do the fingerprints provided by the user at this terminal match those associated with the identity they are claiming?". Advanced digital ID adds value to this layer

of assurance through additional levels of data overlaid onto foundational digital ID to assign people profiles and categorisations such as voter and driving, affordability and credit scores, background check profiles, criminal records, and insurance premium tiers.

There are two ways the gap between the current proliferation of digital ID and its potential can be measured: first, by assessing how much value digital ID can add to a system; and second, by determining how much friction digital ID can reduce in a system. The value-add lens is best understood anywhere innovation potential is untapped due to a low proliferation of identity for sectors where some level of KYC compliance is required to operate (for example, financial services, insurance, betting and gambling, sale of alcohol, and travel). The ability of these sectors to grow and break new ground remains limited when the digital identity systems they operate in are basic and limited to enrolment, verification, and authentication. An illustrative opportunity is enabled by digital ID can look like insurance companies working with the Federal Road Safety Commission (FRSC) to connect data that demonstrates that a person lives in a state with low crime rates, has been gainfully employed for multiple years, and has no traffic violations. That data together can be used to justify offering them lower car insurance premiums. In this one example, digital ID's market-making capability is seen in how it can increase end-user affordability, which reduces barriers to accessing the product while allowing companies to become more competitive as a result of identity data-driven market intelligence. This is also applicable in advancing the credit market through alternative credit scoring, which can benefit currently financially excluded end-users, thereby expanding the total addressable market for credit providers.

The friction reduction lens is best understood in cases where identity verification is a bottleneck that slows down service delivery. In the public sector, issuing identities to residents using analogue identity systems for

²⁴ National Identity Management Commission, National Identification Number Mandatory from 1 September 2015 – NIMC, 2015

them to access social services, pay their taxes, vote, and obtain travel documents require high levels of infrastructure investment across multiple physical centres for each government agency, staff, and the printing and issuing of physical tokens or credentials. Centralising and concentrating the investment via a harmonised digital ID system streamlines and ultimately reduces the time, financial, and human resource costs for identity issuers and lowers access barriers for users. For end users, collecting physical documents, travelling to enrolment centres, duplicating enrolment processes across multiple functional ID uses, and not being able to use one legitimate ID to access a service one is eligible for is an incredible amount of friction. Public sector advanced ID applications could allow a taxpayer to give the tax authority consent to digitally access the relevant bank information, investment accounts, and employment records necessary for filing quickly and with minimal human error.

Digital ID also has significant cost-saving applications both for governments and the private sector. In addition to the 7% of current GDP digital ID could add to Nigeria previously mentioned digital ID has also saved costs for the government through reducing duplicate issuing of benefits and government payments across social services and state employee payroll. This freed up an estimated USD 3 billion in public benefit leakage worldwide and NGN 500 million for Nigeria in particular by clearing federal and state payrolls of 50,000 ghost workers.²⁵ A second economic value add of digital ID is how it significantly lowers the cost of fulfilling KYC requirements. India's digital ID system, Aadhar, is purported to have lowered the cost of KYC verification for financial institutions by a factor of 7 from around USD 5 to approximately USD 0.70 per customer.²⁶ Digital ID also supports the efficiency, reach, and cost of modernising public services such as healthcare, welfare payments, certifications, and licenses by reducing costs associated with brick and mortar, paper-based

identity systems. It boosts convenience for users relative to legacy systems that require multiple physical visits, eliminates exclusion for social benefits and civil participation by reducing travel costs, and minimises waiting times by allowing remote authentication, even in low internet areas. Digital ID can substantially streamline relations between governments and the private sector, including corporate registrations, taxes, economic support, permits, and authorisations.

Because digital ID is more expansive in how it can reliably certify that one is who they claim to be, it can apply a broader set of use cases and reach people that traditional analogue IDs cannot. Relative to analogue IDs, digital IDs can provide additional levels of assurance (LoA). This allows sectors like financial services and travel and migration to obtain greater LoA for increasingly sensitive use cases like Anti-Money Laundering and the Combatting the Financing of Terrorism (AML/CFT). It also empowers innovators working in growing fields like cross border eCommerce, base of the pyramid financial inclusion, alternative credit scoring, and smart insurance premium scoring comply with KYC requirements, develop bespoke customer profiles that enable them to understand and tailor products to expanding

Digital ID can substantially streamline relations between governments and the private sector, including corporate registrations, taxes, economic support, permits, and authorisations



²⁵ Africa Renewal and the United Nations, African countries embracing biometrics, digital IDs, 2021

²⁶ World Bank, e Public sector savings and revenue from identification systems: Opportunities and constraints, 2018; McKinsey, 2019

markets, and enable customers to interact with businesses and each other in increasingly secure ways. It allows for greater assurance and tracking of segments of the labour force through background checks and employment history logs and ensuring that people have the required level of experience, skills, and qualifications for their role. When it comes to

trade and commerce, digital IDs enable greater security in asset transfers by helping ensure that those trading assets have the right to and have not subverted the rights of actual owners through parallel customary or alternative/handshake deal systems, which has particular relevance for gender equity when it comes to the ownership of assets like land.

To create and sustain value, digital ID must be based on the following principles:

Be unique

Allow an individual ownership of their identity and provide a high level of assurance to a user that no one else can easily purport to be them fraudulently. This also aids deduplication efforts, which are critical for governments to hold accurate data on a country's demographic dynamics

Add material value to the end user and identity issuer

Allow individuals to access goods and services in exchange for their identity data

Be inclusive and not act as cause for withholding vital goods and services

Serve as a tool for the efficient delivery of goods and services rather than a tool for targeting and exclusion

Collect only the minimum required data to meet system needs

Adhere to data minimisation norms: Collect only the minimum required data to meet system needs

Protect user data and privacy

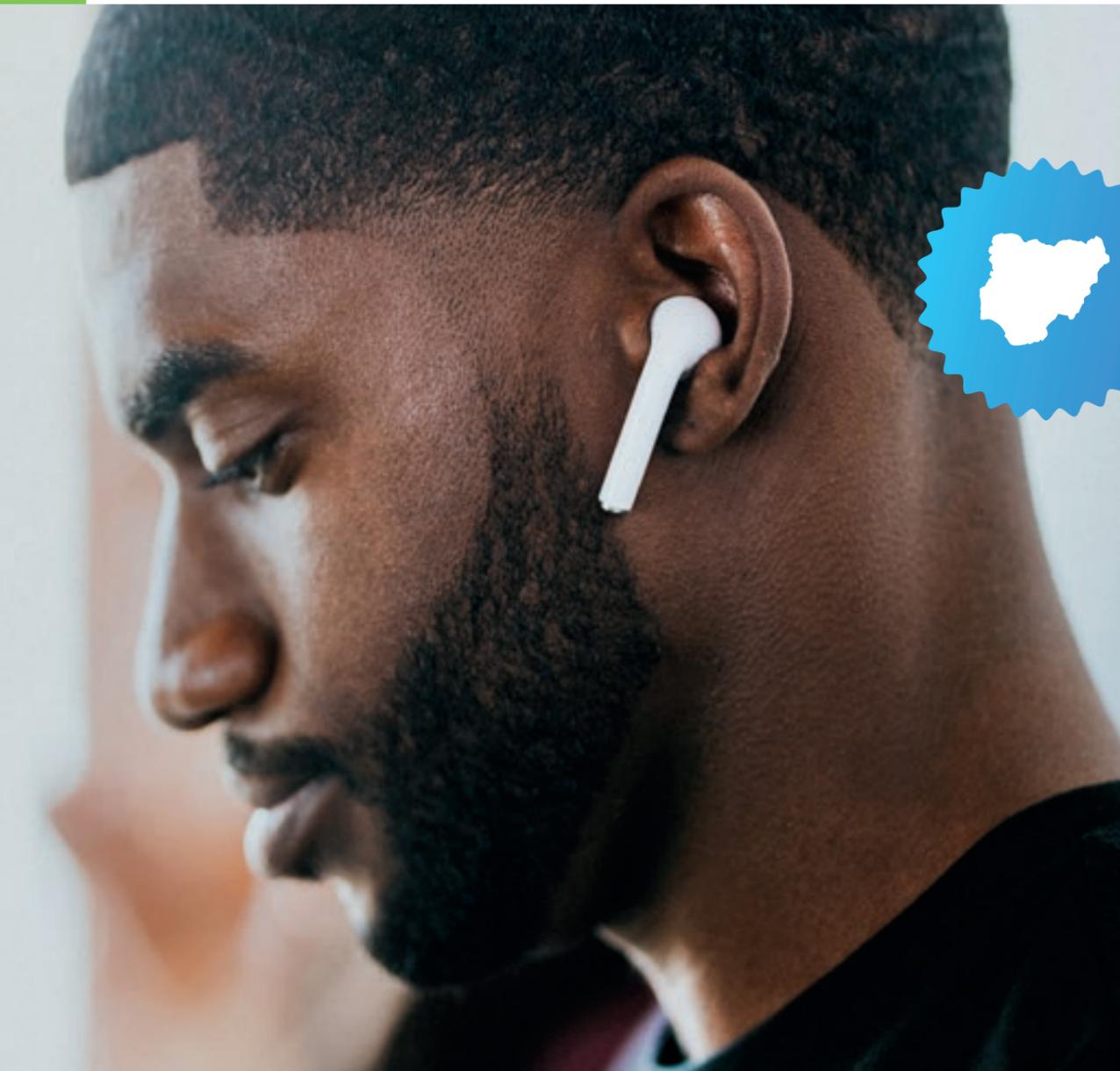
Balance the tradeoff between the efficiency of connecting numerous identity datasets with concentrating too much data in the hands of actors who can use it to influence political, cultural, and economic choices

Conform to the highest standards of authenticity/verification

Ensure the highest standards of data verification across enrolment, validation, authentication, verification, retrieval, and deletion

These principles ensure that digital ID systems centre user-centricity, value generation, inclusion, and long-term sustainability by design. They are also crucial to proactively addressing valid concerns from public, private, and civil society actors on the dangers of concentrating identity data and online transaction and interaction data in the hands of a single actor such as a government or other identity intermediaries

The current state of Digital ID in Nigeria



At the time of writing this report, 15% of Nigerians have both an e-ID card²⁷ and a National Identification Number (NIN), while ~30% have a NIN (66m) but no e-ID card.²⁸ Additionally, over 100 million Nigerians, or a little less than half the population, do not have any form of recognised ID, including other non-NIN IDs.²⁹ At last count, approximately 500m

Africans had no form of recognisable legal identity. This means roughly half the continent and the country, respectively, lack an integral enabler of accessing a bank account, loan or, insurance product; voting, driving legally, starting a job, receiving medical and government services, flying on a plane, and participating in online marketplaces, to name a few.



27 National Identity Management Commission, Updated – FG Urges Citizens and Legal Residents to Enrol Before March 31 2022, 2021
28 World Bank, The State of Identity Systems in Africa, 2017
29 Ibid



Relative to other large economies in Africa³⁰

 Population size³¹

 Economy size³²

 Foundational ID proliferation

 Digital ID proliferation

 Digital financial services snapshot³⁷

	 Nigeria	 Ethiopia
Population size ³¹	206 M	116 M
Economy size ³²	USD 443 B	USD 94 B
Foundational ID proliferation	30% ³³ Paper-based, ward level ID.	85-90% ³⁴
Digital ID proliferation	15% ³⁵	Pre-roll out at time of report publishing ³⁶
Digital financial services snapshot ³⁷	39.7% have an account with the financial institution; 5.6% have a mobile money account; 6.3% make online purchases or pays bills online	35% have an account with the financial institution; 0.3% have a mobile money account; 0.6% make online purchases or pays bills online

30 World Bank, The State of Identity Systems in Africa, 2017

31 Data Commons, World Bank, World Bank, A Synthesis of Country Assessments, 2017

32 Africa Economic Outlook, African Development Bank, 2021

33 National Identity Management Commission, Updated – FG Urges Citizens and Legal Residents to Enrol Before March 31 2022, 2021

34 World Bank Identity Development, Ethiopia Country Diagnostic, 2018

35 National Identity Management Commission, Updated – FG Urges Citizens and Legal Residents to Enrol Before March 31 2022, 2021

36 All Africa, Ethiopia: Nation Distributing Digital ID for Advanced National, Continental Services, 2021

37 Data Report – Digital in Nigeria 2021, Data Report – Digital in Ethiopia 2021, Data Report – Digital in Egypt 202, Data Report - Digital in South Africa 2021, Data Report – Digital in Kenya 2021

	 Egypt	 South Africa	 Kenya
Population size ³¹	103 M	59 M	54 M
Economy size ³²	USD 362 B	USD 283 B	USD 100 B
Foundational ID proliferation	92% ³⁸	99% ³⁹	84% ⁴⁰
Digital ID proliferation	NA	11% ⁴¹	0.6% ⁴²
Digital financial services snapshot ³⁷	33% have accounts with a financial institution; 20.6% use mobile payments; 1.3% have a mobile money account; 3.5% make online purchases or pays bills online	69% have an account with the financial institution; 19% have a mobile money account; 14% make online purchases or pays bills online	82% have an account with the financial institution; 73% have a mobile money account; 26% make online purchases or pays bills online

38 Alliance for Financial Inclusion, The Case of Egypt: Financial Inclusion through Digital Financial services and Fintech, 2019

39 Statistics South Africa, 2021

40 Research ICT Africa, Digital Identity in Kenya: Case study conducted as part of a ten-country exploration of socio-digital ID systems in parts of Africa, 2021

41 Statistics South Africa, 2021

42 Research ICT Africa, 2021

In Nigeria, the Digital Identity Ecosystem is based on the foundational identity of a National Identity Number (NIN). The government intends to make it the central, most widely used form of identity. The NIN is a unique identifier issued to all Nigerians who register. It requires enrolment at a NIMC centre where one provides the registration agent with their demographic information, biometrics, a photo, and a digital signature, which together constitute a set of data that can be used as an identifier that is the number itself. Approximately 10,000 NIMC enrolment centres cover most of the country, with a concentration in city centres and the South.⁴³ The physical token linked to the NIN is the e-ID card, a smart card that stores NIN information, including the number and the user's biometric data in its

chip. e-ID cards are meant to be issued within 12 months of successfully obtaining a NIN.⁴⁴ Registered users can also download a mobile application linked to their NIN that is also a valid form of ID across the federal republic. On National ID Day 2021, a representative of the President announced the release of a NIN tokenisation feature that adds a layer of security for NINs to address data privacy and protection concerns. Tokenisation offers an additional level of access control to authentically claim ownership of a NIN in a way similar to how a PIN is necessary to prove rightful use of a bank card to access a bank account at an automatic teller machine (ATM).

The country is undergoing a multi-year harmonisation effort to connect data from



43 National Identity Management Commission, Presentation at 2021 National ID Day, 2021
44 Ibid

various government agencies' identity datasets to NIMCs National Identity Database (NIDB). There are at least 19 agencies that will be connected to the NIN upon full harmonisation, which presents a remarkable opportunity to dramatically reduce the cost of identity management on a governmental level through the integration and interoperability of databases across various agencies and departments. The harmonisation framework is well-designed and makes provisions for clear linkages between functional ID systems and the NIDB in ways that do not compromise personal data via unauthorised use. The framework also makes a series of frequently used services more convenient to access through the use of the e-ID card in efforts to drive uptake.

In its first and current iteration, the card has two functions in addition to proving identity:

Payments: The card can be used to receive funds from other individuals' bank accounts, receive government social security payments, make payments at point-of-sale terminals and online merchants via a 4-digit PIN, and withdraw and transfer funds at an automatic teller machine (ATM). In addition to biometric data, the e-ID chip stores a user's Primary Account Number (PAN) and Card Verification Value (CVV) for MasterCard Payment.

Travel: Further, the e-ID serves as an International Civil Aviation Organisation-recognised travel document for travel throughout ECOWAS enabled by the machine-readable lines on the back. Second generation cards are expected to include integration with the Federal Licensing Road Agency for driver's licenses, the Independent National Electoral Commission to enable e-voting, the National Insurance Commission (NAICOM) to issue and renew insurance policies and schemes, and the Federal Inland Reserve Service (FIRS).⁴⁵

Providing a NIN is necessary to renew passports and driver's licenses, register to write matriculation examinations, and

45 National Identity Management Commission, Presentation at 2021 National ID Day, 2021
46 Ibid

The harmonisation framework is well-designed and makes provisions for clear linkages between functional ID systems and the NIDB in ways that do not compromise personal data via unauthorised use

register a SIM card. NIMC cites several policies as central to the success of these linkages, which have been instrumental in enrolling 63 million residents as of September 2021.⁴⁶ These include the Regulatory Framework for Bank Verification Number (BVN) harmonisation with NIMC's Harmonisation and Integration Policy, which enabled the simultaneous auto-generation of a NIN for unregistered users who register for a Bank Verification Number (BVN) to access financial services; the Revised National Identity Policy For SIM Card Registration which mandates the use of a NIN to access a Subscriber Identification Module (SIM) to access phone and internet connectivity; policy with the National Immigration Services that mandated the use of NIN for passport application and renewal; the National Policy on Digital ID for Internally Displaced Persons in Nigeria that has expanded the size of the reachable populace; and policy requiring the use of a NIN for JAMB Examination registration and sitting. The Nigerian e-Government Interoperability Framework, the Enterprise Architecture, and the Nigeria Data Protection Regulation are in place, and all Ministries, Departments and Agencies are expected to comply with these policies.

Alongside the government's top-down harmonisation push, the private sector is working to close the credibility gap in bottom-up ways that add immediate value to users. Private companies often occupy the



intermediary position between the government as the primary identity issuer and the private and civil society sectors as the originators of uses and applications that rely on a legitimate legal identity framework. A collection of private digital ID companies in Nigeria are applying their time and resources to advancing the universal coverage objective. Around 200 private sector partners are licensed to enroll users on a pay-per-capture basis within Nigeria's borders and 22 sites around the world cater to Nigerians in the diaspora.⁴⁷ The companies serve a range of additional needs and act as a partner vendor to the state by verifying NINs, BVNs, and driver's licenses for access to social services. They also support the financial services industry - from traditional big banks and insurers to niche, innovative fintech companies with KYC and compliance requirements, customer onboarding and remote account creation, creditworthiness checks, and fraud profiling and detection. They support the labour market by enabling rapid background checks for recruiters and employers, land transfers, and asset verification.

The private sector's role as an intermediary between individuals and the government and a bilateral supplier to individuals and governments places it at the intersection of a large amount of data. This presents an opportunity to build entirely new industries based on that data or treat data as a product and service on its own – one with high socioeconomic value generation, impact, and market intelligence potential. As is the case in Nigeria, this data is governed according to international best practice as it pertains to collecting, storing, and using identity data. The data belongs to the government as opposed to private actors, and is appropriately anonymised and accessed through an open interface to be used by data scientists and innovators in a range of different sectors – including within government – to enable increasingly data-driven decision making. Particularly for companies that serve as intermediary interfaces that pull from government and private datasets, the untapped potential lays in as yet unearthed



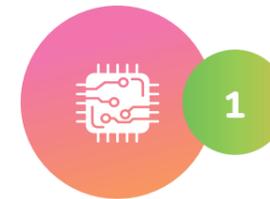
data that can shed light on insights on planning around health and education and innovating on business models that require unique scoring like insurance and consumer credit, for example. For increased data protection as more population information is captured, a Data Protection Bill was circulated for stakeholder validation in September 2020.⁴⁸

Alongside the government's national harmonisation push, the private sector is working to close the credibility gap in ways that add immediate value to users.

47 National Identity Management Commission, Presentation at 2021 National ID Day, 2021

48 Premium Times Nigeria, Data Protection: Indignation as FG abandons draft bill, seeks consultants for fresh process, 2021

Private companies often occupy five key roles



Hardware and software providers

Private companies like MasterCard, CryptoVision, and USG technologies provide the hardware that the ID system runs on



Identity verifiers

Companies like Carbon IVS, iDentity, Smile Identity, and Lexis Nexis also act as partner vendors to the state by verifying NINs, BVNs, and driver's licenses for access to goods and services



Enrolment partner

A collection of private digital ID companies in Nigeria like VerifyMe are applying their time and resources to advancing the universal coverage objective. Around 200 private sector partners are licensed to enrol users on a pay-per-capture basis within Nigeria's borders and 22 sites around the world cater to Nigerians in the diaspora.



Service providers

Companies like banks (Kuda Bank, Branch International), telecommunications companies, travel companies, and e-commerce stores use digital identity to provide goods and services to customers in ways that are compliant with the law's KYC requirements using vendors such as Shufti Pro



Innovators

Private sector companies also contribute to solving structural challenges like vague addressing systems in certain regions through agency networks (e.g., VerifyMe), customer segmentation, customer onboarding and remote account creation, creditworthiness checks, and fraud profiling and detection (e.g., YouVerify). They support the labour market by enabling rapid background checks for recruiters and employers, land transfers, and asset verification. VerifyMe, for instance, seeks to add trust to the labour market through the OnIdentity report, built from the most extensive work history database in Nigeria to allow potential employers to understand candidates beyond a self-reported CV

Understanding challenges to uptake in Nigeria



Digital ID systems are most effective when they reach critical mass. As such, universal coverage of digital ID is a top priority for governments. For a country as populous as Nigeria with many existing legacy functional ID systems, however, achieving universal coverage within set timelines comes with a unique set of challenges.

On a user level, there are limited incentives for people who hold existing functional IDs. Most residents find enough utility in the functional IDs they already own to access the goods and services they consider essential. NIMC's harmonisation architecture demonstrates a clear understanding⁴⁹ of this by working to link the NIN to nearly all social services in a multi-year rollout, but further opportunity to create and define more use cases also lays with the private sector. Phasing out the use of alternative identification to the NIN to book a flight with an airline, for instance, could have the same positive effect on uptake as mandating a BVN for opening a bank account and a NIN for having a working SIM card. NIMC announced at 2021's National Identity Day proceedings that a stakeholder consultation on an upcoming public awareness campaign on the value of digital ID is in their roadmap, demonstrating an acute awareness of the role of sensitising the benefits of a NIN to incentivise residents to enroll proactively.

Increasing user incentives relies on two enabling factors: ease of user experience to register oneself for a NIN and an enforceable consequence of not complying. The most publicised way Nigeria has done this with reasonable success has been mandating SIM cards be linked to NINs to avoid being

disconnected from cell and internet services. Given the country's 50% internet penetration, 188 million mobile connections, and 104 million internet users as of January 2021 – the immediate incentive should have been relevant for users.⁵⁰ However, the efficacy of this approach alone has proven limited, as evidenced by low user adherence even as two enrolment deadlines came and went. While this may have been partially due to perceptions that the process was too lengthy, there was also alignment between telecommunications companies and the government in enforcing the consequences, as telecommunication companies need to balance the risk of losing millions in revenue a day as subscribers are barred from service. A more lenient approach was employed, in which failure to adhere to the deadline resulted in an extension, during which mobile service resumed, instead of the initially communicated repercussion. This approach can delay uptake over the long term and make it difficult to accurately determine when the desired levels of coverage can be achieved. A similar challenge to uptake can be seen in the Central Bank's regulation that all Bank Verification Numbers (BVN) be linked to NINs. While linking one's BVN to a NIN is technically compulsory, only 43.2 million of Nigeria's 111.5 million bank accounts and non-compliant bank accounts are still allowed to operate at the time of writing this report.⁵¹ Other demand drivers with promise are the compulsory NIN requirement for driver's license renewal with the Federal Road Safety Commission with around 700,000 new driver's licenses and 12 million car registrations issued per year.⁵² The Joint Admissions and Matriculation Board, with 1.3 million enrolments as of May 2021, presents another opportunity for linking registration to existing demand.⁵³

49 National Identity Management Commission, Presentation at 2021 National ID Day, 2021
50 Data Reportal, Digital in Nigeria 2021
51 Nigeria Inter-Bank Settlement System, Bank Verification Number, 2022
52 Federal Road Safety Commission, Statistics Digest Third Quarter, 2021
53 Premium Times Nigeria, JAMB to conduct mock for 160,617 candidates, 2021



In terms of the technology across the identity ecosystem, lack of interoperability across legacy functional ID systems is an untapped opportunity for channelling identity data into the NIDB. Many functional ID systems already collect the kind of data a NIN requires but are not connected to the NIN technologically such that enrolment for a user's functional ID of choice or convenience also populates the NIDB,

which would be the fastest and least friction-filled path to universal coverage. While there is an informal data sharing deal between NIMC and the Central Bank regarding BVN data, technologically interoperable systems would make the immediate usability of BVN data to the NIN automatic.

To construct a tight identity ecosystem that captures residents as early as birth via the Civil Registry then seamlessly graduates them to an adult NIN, entry points into the identity system need to be streamlined.

Current entry points into the digital ID system do not yet follow a streamlined identification lifecycle that connects the civil registry to the NIN, thus ensuring that residents are identified to some extent for most of their lives. A best case scenario is that birth records convert into a NIN through a process that does not duplicate the collection of existing data such as date of birth, parents' full names, and sex assigned at birth, but simply adds attributes like biometrics, photograph, and digital signature upon turning 16 or at a juncture that would capture most of the population, for example, matriculation examinations, enrolment into national health insurance, or registering to vote.

A tight identity data ecosystem can mitigate challenges with data integrity that come with attempting to retroactively



harmonise datasets, as NIMC is at present.

Telecommunications companies and the Voter's Registry both hold a wealth of identity data, which is an opportunity NIMC is capitalising on by partnering with these stakeholders. However, neither telecomms nor voter data is AML compliant as the identities they issue are not unique and can be easily duplicated across multiple locales. Registering to vote in more than one state would allow someone to obtain multiple IDs and there are currently no ways to flag this duplication. Similarly, one can register multiple SIM cards using various combinations of their ID data like address or marital status. Working this data into the NIDB will incur the additional costs of data cleaning or collecting it again using standardised formats.

The Central Bank's digital ID, the BVN, has achieved the most success in this regard and can serve as a model of what efficiency gains digital deduplication can have.

The BVN system does an authentication check to ensure a user's identity data has not been previously registered and links all financial products any resident uses to a single BVN. Retail lenders in Kenya have had to keep interest rates generally high as their primary risk mitigation mechanism in an ecosystem where a loan defaulter at one institution can apply for more debt at another by producing an alternative form of identification. On the other hand, Nigerian retail lenders have the harmonised BVN as a safeguard against this as well as individualised data to offer tailored and more competitive interest rates. However, the BVN faces its own challenges with data integrity with human input errors from agency registrars, causing some digital banks to reject large volumes of applications where there is evidence that a prospective client's BVN was registered at an agency location. This is due to a lower standard of data accuracy checks and high volumes of fraudulent verifications experienced from these locations.

Logistically, an expected challenge is the magnitude of operations required to drive

A tight identity data ecosystem can mitigate challenges with data integrity that come with attempting to retroactively harmonise datasets, as NIMC is at present

universal coverage in the continent's most populous country. Nigeria's 10,000 NIMC centres mean there is one centre per ~25,000 residents or roughly 12,500 adults. It took eight years to register the first 42 million people on the NIN database meaning that NIMC would have needed to register over 57 million subscribers within a four-month window to meet its 2021 target.⁵⁴

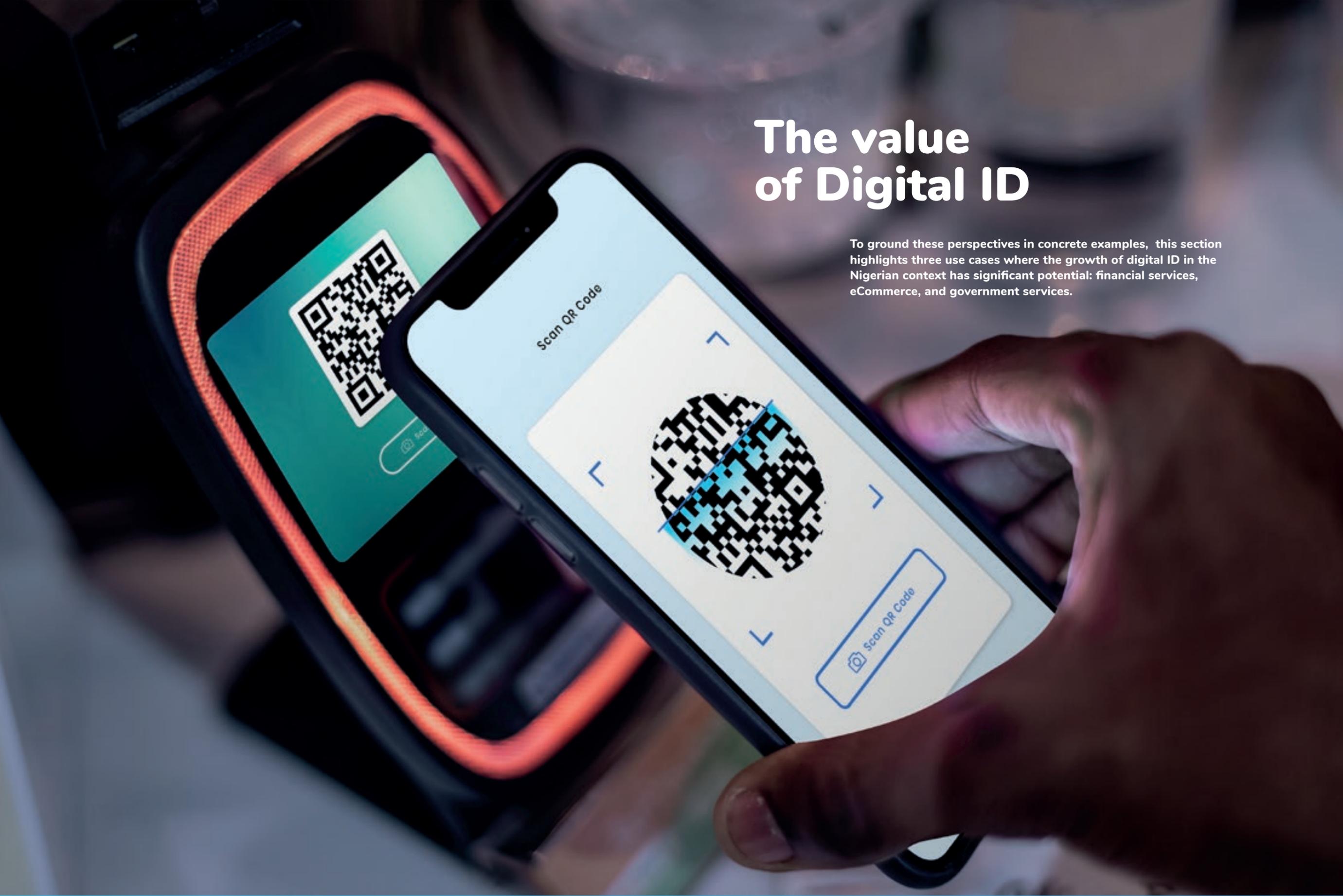
Enrolment centres are concentrated in city centres, which pose a challenge to reaching the country's 48% rural and peri-urban population.⁵⁵ These non-urban centres have a higher likelihood of limited addressing infrastructure; for example, lack of standardised street names and house numbers that correspond to official maps and sources. An identifiable address is a core attribute for digital identity and KYC compliance.

Most areas in Nigeria also have more men than women enrolled, highlighting the need to prioritise understanding what is causing the gender discrepancies.⁵⁶ These may lay in marketing to, being accessible to, and being convenient to women's lives given the gendered difference in divisions of labour, access to funds and transport necessary for enrolment, or cultural norms surrounding who holds access to tools that require ID enrolment such as bank accounts or voting IDs.

⁵⁴ The Africa Report, Nigeria: Registration of SIM cards risks alienating those at the bottom of the pyramid, 2021

⁵⁵ World Bank, Global Development Indicators, n.d.

⁵⁶ National Identity Management Commission, Presentation at 2021 National ID Day, 2021



The value of Digital ID

To ground these perspectives in concrete examples, this section highlights three use cases where the growth of digital ID in the Nigerian context has significant potential: financial services, eCommerce, and government services.



1

USE CASE

Financial Services

The current state of affairs

National AML/CFT law seeks to increase levels of financial flow transparency by mandating tiered KYC requirements, but these are not well adhered to. At present, 65% of Nigeria's financial flows are difficult to account for reliably, tax, and be securely exchanged.⁵⁷ The formal financial system only serves around 35% of the economically active population. The remaining 65% are served by the informal sector's microfinance institutions, moneylenders, friends and family, and rotating credit and savings associations. As a result, the financial sector carries a high level of unaccounted for financial flows, fraud, and a heavy tax leakage burden. The Federal Inland Revenue Service loses \$15bn annually to tax evasion.⁵⁸ 2018 estimates put the shortfall of potential versus actual VAT collections as high as 70%. The Nigeria Inter-Bank Settlement System reports that as cashless transactions across mobile banking, USSD payments, EFTs, and point of sale payments grow, so does fraud.⁵⁹

While KYC is an integral part of a robust financial service sector, the compliance burden is high and often too expensive for players other than large actors who already control large shares of the market. Given the low proliferation of NIN and BVNs, the workflows involved in conducting KYC, especially last-mile compliance, are burdensome. Core issues remain around address verification, particularly in the North East, where addresses do not align neatly with what needs to be input into banks' standard data entry fields. Accessing remote populations to upload biometric data is in part addressed by private companies who run extensive agency networks and act as extensions of financial institutions and the government when it comes to enrolment apparatus. Better still, digital banks currently lead the charge with remote account opening that puts the power to sign up, prove identity, and securely upload biometric attributes like photographs in the hands of users. However, high compliance costs still ultimately skew the market in favour of big players like large banks, insurers, and telecoms

57 Microcredit and Poverty Alleviation in Nigeria in COVID-19 Pandemic - Department of Finance, University of Ibadan, Oyo State, Nigeria, July 2021

58 Business Day Nigeria, Nigeria loses \$15bn annually to tax evasion, 2019

59 Nigeria Inter-Bank Settlement System, NIBSS Insight: Fraud in the Nigeria Financial Services, 2021



While KYC is an integral part of a robust financial service sector, the compliance burden is high and often too expensive for players other than large actors who already control large shares of the market

that already control large shares of the market; thereby fostering market monopolies as opposed to market diversification, which is important to improving financial inclusion, economic resilience and promoting innovation.

Challenges with affordable compliance processes result in financial institutions being unable to serve entire population segments, particularly those that struggle to meet KYC requirements. 56% of Nigerians are currently unbanked, many of whom cannot open accounts due to not having any legally recognised form of identity.⁶⁰ Five demographic groups are financially excluded at especially high rates: women (~53% inclusion rate), rural populations (~48%), youth (~48% for 18-25-year-olds), those living in the North East and North West (~33%), and small to medium enterprises (statistics not available).⁶¹ This inhibits the growth of priority sub-sectors laid out in the 2018 National Financial Inclusion Strategy such as increased access to savings vehicles (which the strategy aims to increase from 24% to 60%), access to credit (which the strategy aims to increase from 2% to 40%), insurance (which the strategy aims to increase from 1% to 40%), and pensions (which the strategy aims to increase from 5% to 40%). Given the gap between the 2020 actuals mentioned above and the 2030

60 Central Bank of Nigeria, National Financial Inclusion Strategy, 2013

61 Ibid





targets, there is significant untapped growth in the Nigerian market for a broad array of consumer services.

The identification bottleneck ultimately reduces consumer and investor confidence in the sector, limits its potential to generate sustained socioeconomic value, and holds back financial innovation. In addition to the financial inclusion parameter, few private players are investing in serving the base of the pyramid, as ID is a debilitating obstacle to achieving critical mass. This means SMEs lose out on this investment and the untapped regional and pan-African opportunities to invest in and expand businesses across borders are stifled. A lack of confidence in traditional credibility infrastructure has historically encouraged conservative regulation that discourages innovation in financial services. For example, the CBN/NDIC regulation that enabled insuring funds held in mobile money wallets took years to enact, resulting in opportunity costs. Regulatory requirements are rigid when it comes to what services can be offered at what level of successful verification. Financial risk is the primary determinant of the stringency of KYC requirements, without sufficient consideration of the feasibility of obtaining the data to meet those requirements in a way that doesn't exclude large segments of the population. This limits innovation when it comes to sufficiently covering those requiring last-mile access or people with little or alternative affordability and credit scoring data.

Regulating KYC and digital ID as independent components and contributors to the financial sector may help unlock notable gains. This requires a retreat from subsuming KYC and digital ID under the financial industry more broadly and instead giving special consideration to its specific challenges outlined in this report thus far. Possibilities include more flexible KYC requirements for inherently exclusionary instances, such as allowing alternative addressing requirements for people who live in non-addressed areas. Another improvement area is developing different standards and enforcement methods, such as a second data accuracy check for quality control across agency BVN registrations subject to higher verification fraud levels.

Possibilities include more flexible KYC requirements for inherently exclusionary instances, such as allowing alternative addressing requirements for people who live in non-addressed areas

The potential future state

Digital ID can support financial institutions carry less risk and help improve prudential regulatory health. BVN's success can be scaled to enforce tiered KYC greater reach, thereby allowing suitable financial products to reach their intended audience without compromising on compliance. On an individual level, residents can have a greater level of security and be encouraged to embrace digital financial services in line with the Central Bank's agenda to move Nigeria away from its predominantly cash-based economy. For SMEs, payments and chargeback fraud, which reduces their bottom line, can be lessened. Greater financial market transparency also translates into benefits on a broader economic level as both international and domestic investors have increased confidence in the security, auditing, and compliance enabling environment, thereby protecting their investments in line with international best practices.

Digital ID is also a promising enabler for financial institutions looking to break ground in new markets, mainly in digital banking, microlending, and insurance. More fintech applications can acquire and serve larger volumes of customers while staying compliant. Digital ID can enable innovative products and services like remote account creation, alternative credit scoring, digitised rotating credit and savings association banking – which tend to benefit historically financially excluded people. Mobile money is also set to grow- the CBN has recently licensed telecoms and others as mobile money operators. While digital ID will not solve the entirety of the financial inclusion equation for this group, it is an important enabler. Financially including individuals stands to have ripple effects on the SMEs they run, thereby opening up the SME ecosystem to a suitable suite of products to enable sustainable growth across business banking, lines of credit, and transacting that would be otherwise inaccessible.

More fintech applications can acquire and serve larger volumes of customers while staying KYC and AML/CFT compliant



USE CASE

eCommerce

The current state of affairs

Nigeria is Africa's 2nd and the world's 25th largest eCommerce market.⁶² eCommerce spending is estimated at USD 12 billion and is projected to reach USD 75 billion in revenues per annum by 2025. According to the Nigeria Inter-Bank Settlement System (NIBSS), Nigeria processed NGN 58.8 trillion (USD 155 billion) of electronic transactions between January and March 2021. **In addition to the CBN incentives to accelerate a digitised economy that is less reliant on cash, the COVID-19 pandemic pushed even more transacting online: volumes of e-payment transactions reached 366 million in 2020, a 57% increase from 232 million in 2019.** In value, this translates to NGN 31.2 trillion (USD 81.6 billion), up 28% from NGN 24.2 trillion (USD 63.3 billion) and 18% of total GDP. In tandem, 2020 saw a 186% increase in overall financial fraud and a 330% increase in mobile payments fraud year-on-year. The COVID-19 pandemic increased the online trade of most key consumer goods, except for travel and accommodation, due to lockdowns and restrictions on movement. Online sales of food and personal goods increased by 60%; fashion and beauty grew by 40% were expected to have grown 28% by the end of 2021.⁶³ As the potential of eCommerce is further realised by a growing, young, digital-native consumer base – online transaction numbers will only continue to rise. NIBSS reports that online instant payments for goods across all NIBSS participating entities are steadily increasing. Instant Payments (NIP) channels like point-of-sale (POS), USSD, Internet banking, and mobile apps grew by 90% YoY in 2020.⁶⁴ 43% of these were mobile payments, and 35% were USSD payments. These numbers were projected to have grown at 84% and 80%, respectively, by the end of 2021. Increased comfort with eCommerce has allowed merchants to reach wider audiences, making efficient onboarding a priority. The country boasts 76.6 million online shoppers per annum on average, representing a 37% eCommerce penetration rate. This number is projected to grow to 122.5m users, roughly 52.5% penetration, by 2025.⁶⁵

62 United States International Trade Administration, Nigeria – Ecommerce, 2021

63 Nigeria Inter-Bank Settlement System, Value of Online Transactions in Nigeria Hit \$116 Billion in Q3 2020, 2021

64 Ibid

65 Statista, Number of online shoppers in Nigeria in 2020, 2021

The country boasts 76.6 million online shoppers per annum on average, representing a 37% eCommerce penetration rate



Growing from acquiring and onboarding 1,000 users a week to 1,000 per day – which is plausible demand given the statistics – would incur a verification bottleneck for merchants who need to comply with even the lightest KYC requirements to process payments. The KYC onboarding burden is even higher for merchants selling age-restricted goods like alcohol, tobacco, or travel tickets. Balancing client conversion and getting the relevant data to satisfy KYC requirements is a tricky task that a growing eCommerce ecosystem needs to constantly manage.

eCommerce growth, naturally, is strongly linked to the development of cashless, online payments, which are plagued by a trust deficit. Web and mobile payments for goods are the greatest sources of payment fraud at 47% and 35%, respectively.⁶⁶ Mobile payments fraud increased by 330% YoY in 2020. SIM swap fraud is undoubtedly an enabler of this broader financial fraud. NIBSS reports that given 10 million incidents of fraud a day, even if online fraud were to decrease to 1%, that would still amount to 100,000 fraudulent instant payments each day. This indicates a current lack of consumer confidence that needs urgent addressing. The fraud challenge with online payments also undermines the CBN's decade-long drive to a cashless economy. When it comes to the trade of high value assets, there is also an opacity when it comes to verifying the ownership and right to trade goods. In particular, women often have trouble exerting rights over land they own by purchase or inheritance, and patrilineal custom-led exchanges can leave them out, even if they are primary or partial shareholders. Verifying that the relevant owners of the asset have signed off on its transfer and purchase can help prevent women from being disenfranchised from accessing assets they legally own.

In addition to goods, people also find, carry out, and get paid for labour online. Remote working has become not only the norm during the pandemic but a method to ensure that physical distances do not restrict talent pools. Entire employment lifecycles are moving online – from recruitment, interviewing, employment history and background checks, qualification verifications, and onboarding, to payroll, income tax, benefit package linkages, and internal data and systems access. For the country's workforce, being eligible for work through adequate background checks and employment history verification expands the universe of employment opportunities. Occupations ranging from domestic work to school teacher to Chief Financial Officer all carry significant responsibility and often require some level of background clearance as a step in the hiring process. More people being able to reliably prove their eligibility and suitability for work is a plus for a trust-based labour market in Nigeria.

66 Nigeria Inter-Bank Settlement System, Value of Online Transactions in Nigeria Hit \$116 Billion in Q3 2020, 2021

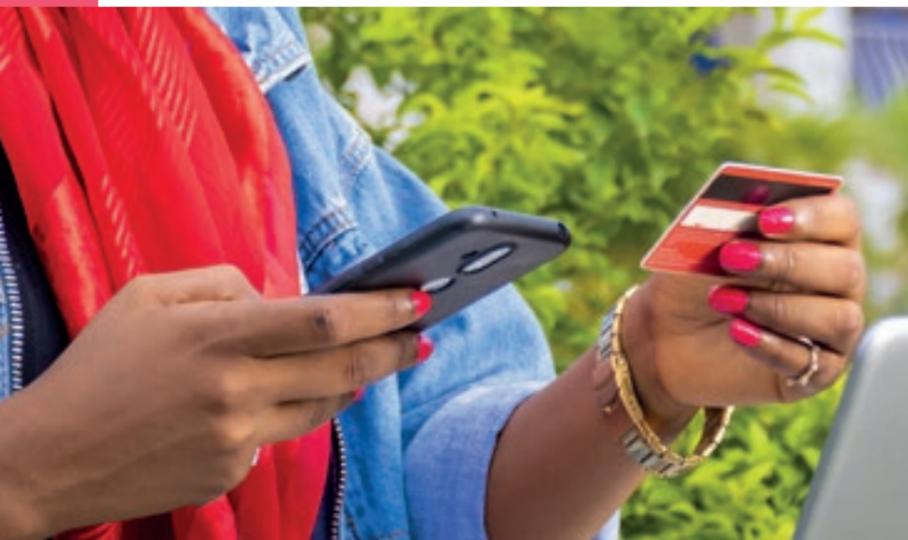
Remote working has become not only the norm during the pandemic but a method to ensure that physical distances do not restrict talent pools



The potential future state

As eCommerce and cashless digital payments grow, digital ID technology can limit the associated growth in fraud. Digital ID payment safeguards such as 2-factor authentication, biometric payments, and mobile ID are additional layers making it more difficult for unauthorised people to transact with others' funds. Measures like mobile device ID also decrease the efficacy of SIM swap fraud, which undermines other security measures like OTPs. In addition to payments, asset verification is vital to close the credibility gap when exchanging high-value items like land and business assets. Ensuring that the person or entity selling a good has the right to do so is equally important to maintain trust in an eCommerce ecosystem. Asset registries also maintain the integrity of business balance sheets, valuations, and collateral for loans.

Transaction data can then serve as a next frontier to develop other sectors like the consumer credit market, which has been a policy priority for a decade. In addition to traditional and alternative financial data, spending data can contribute significantly to developing an increasingly diverse, accurate, and less exclusionary consumer creditworthiness assessment framework. Nigeria's microfinance institutions reported an 89% boom in lending in 2020.⁶⁷ The triangulation of mobile money, digital transaction, and other online behaviour using sophisticated algorithms, already in use by some of Nigeria's most innovative online lenders and empowering users with the credit opportunities their own data can afford them, presents a promising opportunity. More broadly, it is an opportunity to build a market where users are not only penalised for negative behaviour like defaulting but



67 Central Bank of Nigeria, Microfinance, 2020

Measures like mobile device ID also decrease the efficacy of SIM swap fraud, which undermines other security measures like OTPs.

are rewarded for positive behaviour like paying lay-by or buy-now-pay later instalments on time for goods they can afford – like clothing, furniture, and electronics – to build a case for their future creditworthiness for larger assets like homes, cars, and business loans. The data can also be used as a service that increases the aggregate amount of market intelligence on consumer behaviour, allowing businesses to make informed decisions about better serving customers and growing their businesses.

As eCommerce grows, payments companies need to exhaust the payments security possibilities digital ID presents for growing mobile payment options while mitigating fraud.

Device ID is at the cutting edge of this technology as it links mobile device ID stored on SIM cards and the device itself with e-ID cards. Each time a user wants to renew or update sensitive data for payments, the technology checks for a complete match across the parts of the process most vulnerable to being intercepted and corrupted, often due to SIM cloning and SIM swap fraud, before proceeding with updating or sharing information, and processing payments. Stakeholder alignment across payment companies, telecommunications companies, identity verification companies, and the national identity infrastructure to pull the most reliable data from is crucial to achieving this. Another useful measure is two-factor authentication. The most common examples are 3D secure push notifications and One Time Pins sent to mobile numbers, which rely on rapidly reducing SIM swap fraud – another key achievement that corroborates the usefulness of the NIMC-NCC SIM-NIN linkage. The practice also has precedent in South Africa and Rwanda has recently implemented similar regulations around mobile.

When it comes to labour, in a world where remote working and work with teams across different countries and cultures is increasingly the norm, remotely verifying one's identity, qualifications, and past work experience is crucial. For employers and hiring managers, physical and distance limitations no longer need to introduce unnecessary bottlenecks in the labour market when it comes to finding, vetting, and onboarding new talent. Siloed data systems make it easy to carry out payments or employment record fraud, as records of transgressions do not follow perpetrators. Key information in one data set is localised to that domain, even if it could be relevant to another – for example, employment, criminal, and financial records. Digital ID can enable background, criminal and employment history checks to be conducted in trusted, efficient ways that query the appropriate data sets without violating user privacy. Employers are also able to increase their competitiveness and value proposition for an increasingly young, skilled, and in-demand workforce in how seamlessly they can connect financial incentive systems linked to remuneration and benefits. Applications extend even to onboarding to ensure employers sufficiently vet anyone who has access to their information and communication systems.

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3

USE CASE

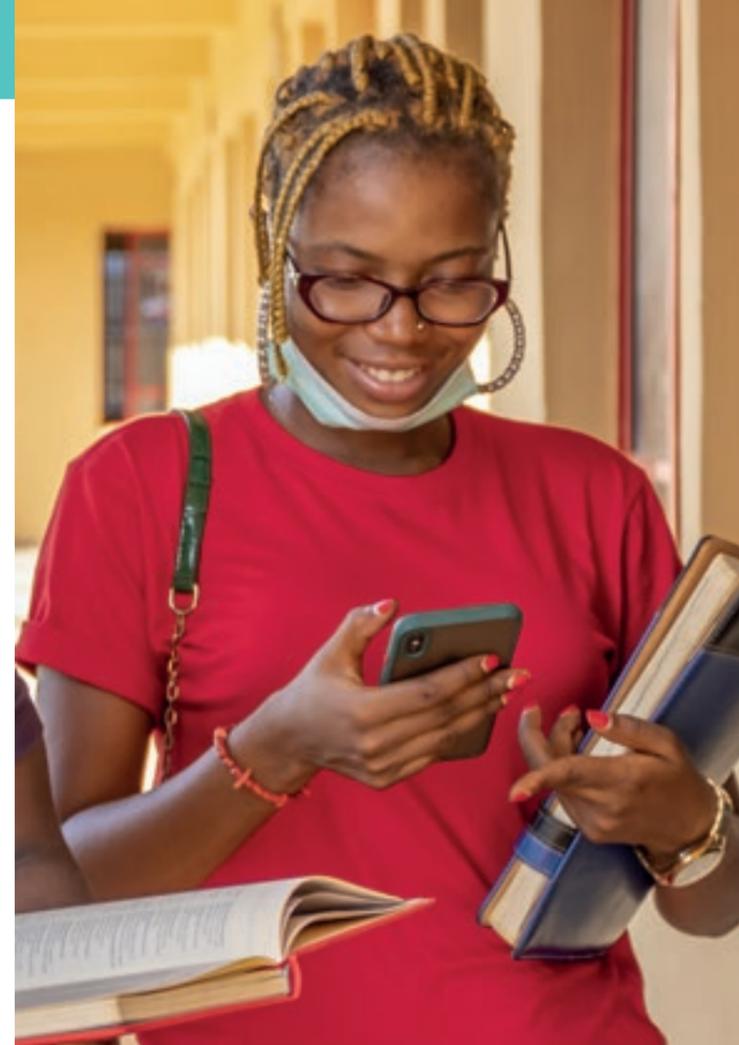
Government Services

The current state of affairs

Serving constituents requires knowing them and their need profiles based on the minimum viable personal data necessary. Digitised identity records can accelerate the rate and scale at which the government can understand its country's data across health, education, safety, migration, and social security and set development targets for each of those priority areas. Data that is dynamic and kept up to date is vital to plan, roll out, and measure the impact of various national and state social resilience interventions in as adaptive and real-time a fashion as possible, which the pandemic has highlighted as highly valuable. In Nigeria, these include National Health Insurance, National Pension Management, the Federal Survival Fund to help MSMEs meet their payroll obligations during the pandemic, and the individual-level Targeted Credit Facility, that supported households in Lagos during the early months of lockdown. These systems collect nearly identical data repeatedly and incur the cost of maintaining parallel systems. Accelerating the NIDB harmonisation effort would avail digital ID as a digital public good that each of these agencies could draw from to offer their services more cost-efficiently for themselves and end users by saving residents the time and financial cost of the pillar-to-post effort analogue identity systems require for collecting, authenticating, and delivering various documents.

Routine government services such as issuing driver's licenses, holding elections, business registrations, and administering matriculation examinations and qualifications also rely on functioning identity systems. Digital IDs' extension from the NIN into these services could be a unique opportunity given the greater frequency with which residents interact with the agencies issuing these services - renewing licenses and passports every few years, for example - compared to NIMC for one-off enrolment. The opportunity to tackle broader challenges such as KYC compliance, delivery of goods and services, and local government record-keeping could lay in specialising certain nodes of the digital ID ecosystem such as the Federal Road Safety Commission (FRSC). Establishing a chain of incentives for residents to keep dynamic attributes of their digital ID such as address up to date is possible with public-private

Data that is dynamic and kept up to date is vital to plan, roll out, and measure the impact of various national social resilience interventions in as adaptive and real-time a fashion as possible



partnerships such as the one VerifyMe has with the FRSC. By making residents accountable to keep the address the FRSC uses to issue important notices such as traffic violations and insurance documents up to date, public-private databases are being used to plug the vague addressing gap plaguing financial services companies who are unable to complete KYC processes and commerce and service companies who struggle to locate customers to deliver to.

To fulfil its mandates, governments fund themselves through taxation, another application that relies on an accurate identity system. Nigeria has one of the lowest tax-to-GDP ratios in the world, at 6% of GDP compared to Africa's next largest economy, South Africa, whose ratio is 25%.⁶⁸ Only 19 million 46 taxpayers out of an employed population. 72% of the 69.5 million overall employed are non-compliant. Over 62% of 120,000 registered businesses do not pay any form of tax at all.⁴⁷ This indicates that traceability of funds from its senders and recipients on a business-to-business, business-to-customer, and customer-to-business basis require strengthened KYC and AML/CFT

⁶⁸ OECD, Nairametrics, Nigeria Recids 6.1% Tax to GDP, 2020

adherence to ensure that the government can collect its share of GDP to do its work.

Overall, the government is well aware of the importance of increasing the speed at which the NIN harmonisation push is implemented. This is in recognition of the crucial objective making sure that the best data is not only available but works together to form more comprehensive consumer and business profiles. Technologically, it is vital to prioritise interoperability between the most useful functional IDs for partnerships that are currently just data linkages but do not yet communicate via API like the BVN, Joint Admissions and Matriculation Board (JAMB) ID, permanent voter cards (PVC), and SIM registrations. For agencies not yet on board, such as the National Health Insurance and National Pension Scheme, devising and circulating a roadmap for stakeholder consultation as done with previous linkages is a next step. Politically, it is necessary to consider the implications, concerns, and incentives for various government departments at multiple levels when it comes to connecting their datasets to the NIBD. For public awareness, as is the case with the public awareness campaign strategy being circulated for stakeholder feedback, a concerted effort needs to be sustained that highlights the benefits awaiting the public on the other side of enrolment as mandates have not been sufficient for compelling people to act.

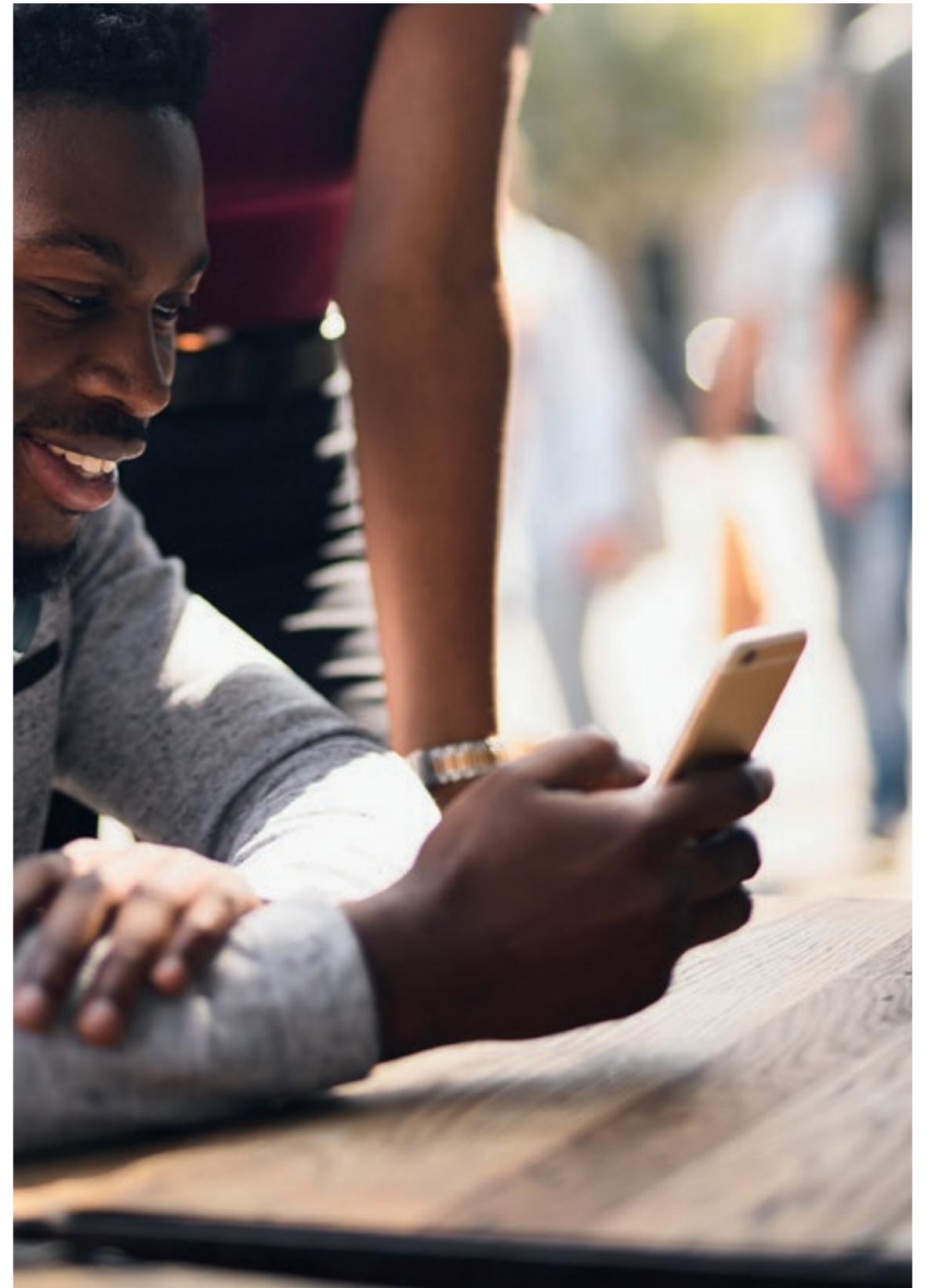


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The potential future state

Nigerian e-Government Interoperability Framework, the Enterprise Architecture, and the Nigeria Data Protection Regulation are in place and all Ministries, Departments and Agencies are expected to comply with these policies,⁶⁹ which serve as governance frameworks for advancing a truly future-fit eGovernment. Each of these has provisions to address valid user and digital rights concerns around the use of data for exclusion, surveillance, and discriminatory purposes, as well as potential data breaches. Legal scholars have a set of recommendations for better redress clauses in the event of a mismanagement of identity data by the government itself in line with clauses on redress in the event that individuals and companies misuse identity data. Appeasing privacy advocates still requires some work and will need tight collaboration across political, legal, technological, and civil society stakeholders.

⁶⁹ Research ICT Africa, Digital Identity in Nigeria: Case study conducted as part of a tencountry exploration of socio-digital ID systems in parts of Africa, 2021



Recommendations to advance Digital ID in Nigeria



Nigeria can continue to adopt an approach that leverages existing legacy systems in terms of workflows and technology. As a first step, this includes assessing which forms of functional ID have the largest user bases and are therefore the highest demand drivers and prioritising connecting them to the NIDB and NIN next in the roadmap. It may also be wise to assess how frequently users of those legacy systems are likely to re-engage with the ID system to ascertain the entry points with the most leverage. The focus could be on high volume, organic touchpoints with identity systems that naturally intersect with users' lives like functional ID renewals, travel, and school enrolment to introduce them to the new system. Stakeholders would need to be comfortable maintaining parallel systems so as not to disrupt the lives of those for whom the digital ID system is not yet relevant and to avoid negative attitudes associated with exclusion and friction towards the transition.



Policymakers can continue to find ways to align the interests of both public and private stakeholders when rolling out and enforcing regulation. When driving uptake, governments could consider employing both the proverbial carrot and stick. The "carrot" is anything surrounding user incentives and demand drivers as well as public awareness. Increasing public awareness of the broader applications of a harmonised digital ID and why it is worth it to enrol, even while use cases are being created and defined may work well. When users find existing solutions sufficient to address their pain points, raising awareness of the additional value add of a harmonised digital ID may help them understand the benefit of complying with mandates to register. When regulating, governments may need to be mindful of the implications of the "stick" when imposing consequences like disrupted access to services for users. From a user perspective, it introduces inconvenience and potential exclusion. For private companies like banks and telcos, implementing repercussions like restricting users from accessing their services affects their bottom line, limiting their incentive to adhere to the regulation in practice.



Opportunities exist to more intentionally link digital economy, financial inclusion, and digital ID regulation in order to mutually reinforce policies and implementation plans. There is a lot of potential for productive overlap across the Central Bank's drive for an increasingly cashless economy, AML/CFT policy, and NIMC's digital ID push. Currently, each of these policies considers and regulates their domain as a relatively standalone component. Opportunities for mutual reinforcement include incentives for going cashless when paying municipal bills or paying renewal fees for driver's licenses or passports. This can drive people to use digital financial products that require that they, at a minimum, register for a BVN as

a first form of digital ID. While BVN data is currently fed into NIMC's NIDB, making the BVN and NIDB (and other data silos) systems interoperable would mean that BVN registration becomes synonymous with NIN registration. As the existing digital ID with the most coverage across Nigeria, this could rapidly increase uptake. At a minimum, a similar approach taken by the FRSC and the NIS could also be applied to the BVN by making the foundational digital ID a prerequisite for BVN. In this way, synchronicities across multiple applicable policies compound and, as a result, accelerate uptake of the NIN, the usefulness of the BVN, and broader economic objectives like greater transparency across the financial sector.



As a technology leader in Africa, Nigeria is well positioned to continue aligning innovation and regulation by linking the experience of industry leaders and entrepreneurs with the shaping of policy environment. Regular dialogue with traditional and frontier stakeholders is critical to understanding pain points and identify how to collaboratively problem solve towards enabling and driving innovation. There is significant room to expand public-private collaboration beyond the existing NIN, passport, and driver's licensing relationships. Technology advancements in the private sector can offer considerable efficiency gains if shared with the public sector, particularly for technological innovations originating in Nigeria. For example, digital banks that have solved remote account opening KYC hurdles through selfie facial recognition technology and NIMC's recent releases of touchless biometric scanning via the ID boxes and the Android app could come together to form an entirely digital enrolment process across the NIN and the BVN to tackle issues of reach to remote and rural populations, groups who may have less time and money at their disposal to travel for in-person registration like working women and mothers, and users who feel inconvenienced by needing to complete enrolment in person. Further, there is opportunity to learn from other countries' successes and failures on implementation, cross-border collaboration, and interoperability – particularly from programs in countries with large populations and similar ambitions such as Aadhar in India and Nadra in Pakistan.



Government and private sector can continue to design and shape collaborations to leverage data from digital identity systems that advances the public good. The FRSC's recent adoption of the NIN as a primary requirement for obtaining or renewing a driver's license and its ability to link NINs to driver's records and infractions poses a significant opportunity for the car insurance sector, for example. As is the case with how BVNs have allowed for the data-driven, individualised tailoring of interest rates and more differentiated products, insurance companies have the opportunity to leverage similar government-owned data to enhance their offerings and competitiveness to users. FRSC data could also challenge existing constructs of user risk profiles and show actuaries which market segments, previously misunderstood, under-researched, and underrepresented, can be served going forward at rates and levels of risk. Remote onboarding using facial recognition, device IDs, and 2-factor authentication greatly expands a service's total addressable market. This would allow for greater scale while staying KYC compliant. Extensive agent networks can support digital ID and carry out last-mile address verification where necessary, not only for KYC but also for KYC adjacent industry growth like insurance claim verification.

Conclusion

Nigeria has made considerable progress in expanding the coverage of its digital ID system based on the NIN and the harmonised NIDB. The successes demonstrated to date make a clear case for continuing to advance the cause, learn from previous challenges and other contexts to unlock the potential that near-universal coverage stands to bring.



The true potential of widespread identification will only be realised if the approach tackles all three components of a successful digital transformation strategy in any context: technological robustness, policy and regulatory readiness, and user-centricity. These three measures ensure sustainability and the ability to add material value to the identity issuer and regulator and its end users.

To sustain public buy-in for digital ID, it is critical to ensure that the system protects users' interests across daily value add, access, and privacy. Digital ID must remain inclusive and avoid restricting access to key goods and services until obtaining a digital ID is as easy, if not easier, than its alternatives. User rights to their data and data privacy protections must be of utmost importance and should be well socialised in public-facing campaigns around these provisions in addition to the overall value adds of digital ID.





Dalberg

