Use-case prioritization framework

Enhancing the functionality of digital identity systems: identification and optimization of use cases for the Kaduna State government

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I. INTRODUCTION

The Green Economy Innovations and Technologies Section of the Technology, Climate Change and Natural Resources Management Division of the Economic Commission for Africa (ECA), in close collaboration with the ECA Digital Centre of Excellence on Digital Identity, Trade, and Economy, is supporting the Governor's Office in the Nigerian State of Kaduna in identifying, optimizing and implementing digital identity use cases. To carry out this consultation, in June 2022, ECA engaged Fola Odufuwa as a consultant and expert for the implementation of digital identity for the Division. In his new role, Mr. Odufuwa would identify and optimize use cases. The same month, ECA also engaged Adeola Bojuwoye as a consultant for the same Division as an expert on the integration and implementation of digital identity.

The two consultants had to identify high-value digital identity use cases that would have a strong impact on the development plans of the State of Kaduna and could be directly linked to the national development plans of the federal Government. Through a stocktaking exercise of existing sets of potential use cases, the two consultants were required to work in conjunction with ECA in developing a use-case prioritization framework to assist the Kaduna State government in making decisions on which use cases to implement immediately.

In the first draft of the present report, the consultants outlined their proposal for a use-case prioritization framework. The proposal was in line with the terms of reference. The draft was transmitted to ECA and the Kaduna State government teams on 11 August 2022. The present final draft incorporates all the comments received on the draft report and is a deliverable under the contract. The consultants acknowledge the invaluable input of ECA and the Kaduna State government teams.

II. BACKGROUND TO THE ADOPTED PROCESS

There is no universal standard for prioritizing digital identity use cases for national or subnational governments. At present, digital identity frameworks are being recognized by industry and are increasingly being used in the public and private sectors, but the frameworks mainly cover national digital identity systems. The frameworks are being built around several issues: overarching principles such as the proposed Principles of Digital ID developed jointly by ECA and the African Union Commission;[1] policies and laws, including the framework for the evaluation of digital identity proposed by the Centre for Internet and Society[2] and the policy model for digital identity of the Alliance for Financial Inclusion,[3] both of which provide a basis for evaluating the governance and implementation mechanisms of national digital identity systems; and trust environments, including, in particular, the eIDAS regulation,[4] which governs the secure cross-border use of digital identities. The African Union is also developing a policy framework for interoperable digital identities.[5]

There are many reasons why digital identity use cases are not comparable, but the main one is that each solution or implementation is unique. Within and across governments, it is nearly impossible to objectively measure and compare the features or characteristics of digital identity use cases, because there are no consistent metrics for making accurate like-for-like comparisons.

Despite the shortcoming, the two consultants developed a three-stage process that they used when they developed a prioritization framework to be considered by the Kaduna State government.

A. Stage 1: Listing

The consultants worked with the Chief Information Officer of the Kaduna State government and the Kaduna State Residents Identity Management Agency to identify the ministries, departments and agencies of the Kaduna State government that might be eligible for support under the current collaboration. In total, 11 ministries, departments and agencies with potential use cases were identified during this process (see table 2).

B. Stage 2: Data collection

The consultants scheduled and conducted meetings with the heads of 10 of the identified ministries, departments and agencies during the week of 25 July 2022, to retrieve pertinent information on any prospective digital identity use-case opportunities. An online meeting was also held with the State Commissioner of Human Services and Social Development and her team on 9 August 2022, bringing the number of ministries, departments and agencies involved to 11.

C. Stage 3: Rating system

The evaluation matrix discussed in section VII of the present report is central to the proposed use-case prioritization framework. The matrix is anchored in a unique, flexible rating system that the Kaduna State government can use to evaluate current and future digital identity use cases. The system is based on a modified Likert scale,[6] an established tool for evaluating data and measuring the level of

1 United Nations, Economic Commission for Africa, "Proposed Digital ID Principles", available at https://www.uneca.org/dite-africa/principles-digital-id
2 Centre for Internet and Society, "Governing ID: a framework for evaluation of digital identity", 2 March 2020.
3 Alliance for Financial Inclusion, "Policy model for digital identity and electronic know your customer (e-KYC)", September 2021.
4 Regulation (EU) No 910/2014 of the European Parliament and of the Council of 23 July 2014 on electronic identification and trust services for electronic transactions in the internal market and repealing Directive 1999/93/EC.
5 Africa Portal, "Event: help the African Union Commission develop a digital ID framework for the continent", 26 July 2021.
6 SurveyMonkey, "What is a Likert scale?" Available at www.surveymonkey.com/mp/likert-scale/

Table 1: Three-point scale used to evaluate ministries, departments and agencies

Ranking	Score assigned
Agree/strong/high	3
Neutral	2
Disagree/weak/low	1

agreement on an issue. Using the tool, evaluators will be presented with a direct, focused statement on each ministry, department and agency, and will be invited to respond using the three-point scale shown in table 1.[7]

The activities listed in table 1 have helped to shape the consultants' understanding of how much benefit the implementation of any use case, finalized with the Kaduna State government, might bring and what the innate challenges would be.

7 Ankur Joshi and others, "Likert scale: explored and explained", British Journal of Applied Science & Technology, Vol. 7, No. 4 (January 2015), pp. 396–403.

III. MINISTRIES, DEPARTMENTS AND AGENCIES WITH POTENTIAL USE CASES

Working with the team from the Kaduna State government, the consultants have prospected and identified 11 ministries, departments and agencies for which there are potential digital identity use cases that could be implemented. The potential use cases are summarized in table 2.

Table 2: Summary of potential use cases

No.	Ministry, department or agency	Mandate	Website	Potential use case
1.	Kaduna State Residents Identity Management Agency	Create and manage a reliable database for all residents	https://kadrima.kdsg.gov.ng	• National Identification Number validation
2.	Kaduna State Contributory Health Management Authority	Provide affordable healthcare services for residents with financial risk protection	https://kadchma.kd.gov.ng	• Digital enrolment • Digital verification
3.	Kaduna State Scholarship and Loans Board	Identify, select and empower qualified citizens for the current and future staffing needs of the State	https://kdsg-scholarship.com	• Digital verification • Data uploads
4.	State Operations Coordinating Unit	Oversee the identification of poor and vulnerable households and their enrolment in the State Social Register	https://kdsg.gov.ng/socu/	• Remote monitoring • Digital verification • National Identification Number validation
5.	Kaduna State Universal Basic Education Board	Provide free and compulsory basic education	https://subeb.kdsg.gov.ng	• Digital verification • Remote monitoring
6.	Kaduna State Internal Revenue Service	Collect and manage internally generated revenue	https://kadirs.kdsg.gov.ng	• 360-degree views of resident records • National Identification Number validation • Digital verification
7.	Kaduna State Pension Bureau	Manage pensions	https://kdsg.gov.ng/2021/03/06/kaduna-state-pension-bureau/	• Remote verification
8.	Kaduna State Traffic and Environmental Law Enforcement Agency	Enforce traffic and environment laws	www.facebook.com/kastelea/	• Remote verification
9.	Kaduna State Primary Health Care Board	Promote general health, and prevent and manage diseases and illnesses		• Tracking of pharmaceuticals • Integration of medical records with the database of the Kaduna State Residents Identity Management Agency • National Identification Number validation
10.	Kaduna Geographic Information Service	Manage land administration	www.kadgis.org	• National Identification Number validation
11.	Ministry of Human Services and Social Development of the State of Kaduna	Ensure the welfare of women, children, socially disadvantaged persons and persons with disabilities	https://humanservices.kdsg.gov.ng	• National Identification Number enrolment • National Identification Number validation • Monitoring and tracking • Payment verification and tracking

IV. DESCRIPTION OF POTENTIAL USE CASES FOR MINISTRIES, DEPARTMENTS AND AGENCIES

A. Kaduna State Residents Identity Management Agency

Potential use case: National Identification Number validation.

Description: Under this use case, a system would be set up for checking the National Identification Number provided by a Kaduna resident against the master database or the National Identity Management Commission databases to verify and validate the person's identity in real time.

Benefits and potential impact: It is vital to verify a resident's identity to ensure that a public service is being offered to the right person. Identity checks reduce fraud, scams and waste, since costs incurred for a specific service can be digitally linked to the beneficiary. From an operational perspective, identity verification also provides a baseline for recording data on all types of public services received by residents on a 360-degree basis, making it possible to allow one ministry, department or agency to see data recorded by another.

Other ministries, departments and agencies that would benefit from this implementation: Kaduna State Scholarship and Loans Board, Kaduna State Universal Basic Education Board, Kaduna State Internal Revenue Service, Kaduna Geographic Information Service and Kaduna State Primary Health Care Board, as well as all digitally enabled ministries, departments and agencies.

B. Kaduna State Contributory Health Management Authority

Potential use cases:

(a) Digital enrolment;

(b) Digital verification.

Description: The proposed use case involves the standardization of data collection by the Kaduna State Contributory Health Management Authority. Using the National Identification Number as the principal data identifier, the agency will be able to electronically manage, track and collect contributory health insurance premiums and reduce the tedious manual processes currently in use.

Benefits and potential impact: Digital enrolment would improve service delivery and ensure that beneficiaries are visible wherever necessary. It would create digital access to insurance coverage, accelerate the delivery of medical services, and reduce turnaround times for patient records and verification.

Other ministries, departments and agencies that would benefit from this implementation: None.

C. Kaduna State Scholarship and Loans Board

Potential use cases:

(a) Digital verification;

(b) Data uploads.

Description: This use case would further strengthen the application, review and payment processes of scholarship and loan applications. The focus would be on improving application features, reducing data input for applicants and providing

a much easier way to identify disadvantaged persons.

Benefits and potential impact: At present, new loan applicants can create an online profile on the Board's portal, but the Bank Verification Number must be used for data validation at the point of payment. The Board continues to decline a significant proportion of payments at this stage based on information inconsistencies arising from the use of a third-party verification system. Implementing a unique process to check the identity of users against the master database or National Identity Management Commission data would vastly reduce the number of applicants blocked at the point of payment.

Furthermore, integrating the Board's need-based scholarships into the master database management system would streamline the economic assessment (such as tax payments and land ownership) of applicants' parents and guardians, by eliminating the current manual process.

Other ministries, departments and agencies that would benefit from this implementation: None.

D. State Operations Coordinating Unit

Potential use cases:

(a) Remote monitoring;

(b) Digital verification;

(c) National Identification Number validation.

Description: The State Operations Coordinating Unit manages the State Social Register, a database of vulnerable persons in the State of Kaduna. The use case would create a platform that would capture and interlink relevant data related to vulnerable persons, such as their National Identification Number information and their geographical location. Current and future social interventions could then be validated against the data, and the impact of the interventions could be monitored.

Benefits and potential impact: The use case would ensure that current and future interventions are better targeted, and that public funds are better channelled to the right people, based on verified digital identities, as availed through the master database management system and the National Identity Management Commission databases.

Other ministries, departments and agencies that would benefit from this implementation: Kaduna State Scholarship and Loans Board and Kaduna State Internal Revenue Service.

E. Kaduna State Universal Basic Education Board

Potential use cases:

(a) Digital verification;

(b) Remote monitoring.

Description: Student enrolment and retention in government schools are critical to the mandate of the Kaduna State Universal Basic Education Board. This use case would create a system and process that would allow the use of digital identity for student enrolment and for the monitoring of teachers and students.

Benefits and potential impact: The use of data measuring student progression and performance as a proxy for the performance of teachers and other staff, and to determine the allocation of funds, would have a significant impact on the education system. Such data, if linked with the National Homegrown School Feeding Program, could also be used to reduce the number of children who are not in school.

Other ministries, departments and agencies that would benefit from this implementation: State Operations Coordinating Unit.

F. Kaduna State Internal Revenue Service

Potential use cases:

(a) 360-degree views of resident records;

(b) National Identification Number validation;

(c) Digital verification.

Description: For the Kaduna State Internal Revenue Service, digital identity would be implemented with a focus on establishing a 360-degree view of the residents of Kaduna to enhance revenue generation. It would also help the Service to cross-check residents' declared assets against their lifestyles to ensure that individuals are placed in the correct tax brackets.

Benefits and potential impact: Integration with the Kaduna Geographic Information Service would make people's land registry records accessible; integration with the Kaduna State Traffic and Environmental Law Enforcement Agency would make their vehicle registration records accessible. Such information could be used to evaluate the accuracy of tax returns, which could increase the proportion of residents paying tax. The use case could also enable certain State-sponsored services, such as scholarships and student loans, to be linked to tax compliance, and thus improve State revenues.

Other ministries, departments and agencies that would benefit from this implementation: Kaduna State Scholarship and Loans Board and Kaduna Geographic Information Service.

G. Kaduna State Pension Bureau

Potential use case: Remote verification.

Description: The verification and payment of pensions would be automated. Digital identity would be used so that confirmation of life can be done remotely.

Benefits and potential impact: The physical verification process that is currently used forces many pensioners, who are elderly, to travel long distances, sometimes risking their lives. Remote verification would eliminate such journeys and reduce the physical pressure on retirees to prove that they are alive.

Other ministries, departments and agencies that would benefit from this implementation: State Operations Coordinating Unit and Ministry of Human Services and Social Development.

H. Kaduna State Traffic and Environmental Law Enforcement Agency

Potential use case: Remote verification.

Description: Digital identity would be used to support traffic law enforcement and increase revenue collection.

Benefits and potential impact: People's digital identities would be collected when they register vehicles. If they breached traffic rules, they would be fined. In situations in which the offenders are not apprehended immediately, Kaduna State Traffic and Environmental Law Enforcement Agency could log fines against the offender's digital identity, and the offenders would have to pay the fine when they next renew the vehicle registration.

Other ministries, departments and agencies that would benefit from this implementation: None.

I. Kaduna State Primary Health Care Board

Potential use cases:

(a) Tracking of pharmaceuticals;

(b) Integration of medical records with the database of the Kaduna Residents Identity Management Agency;

(c) National Identification Number validation.

Description: The use of digital identity by the Kaduna State Primary Health Care Board will enhance service delivery by giving staff at all primary health-care centres access to a single view of the medical history of patients.

Benefits and potential impact: In addition to its convenience for patients, this use case should reduce waste and fraud, since the Kaduna State Primary Health Care Board would be able to link its services and the corresponding costs to individuals through their digital identities.

Other ministries, departments and agencies that would benefit from this implementation: Kaduna State Contributory Health Management Authority and Kaduna Health Supply Agency.

J. Kaduna Geographic Information Service

Potential use case: National Identification Number validation.

Description: Kaduna Geographic Information Service currently obtains and uploads basic information on landowners to their system. This use case would allow digital identities to be used to link various land registrations to individuals during the onboarding process.

Benefits and potential impact: This use case would be invaluable for the retrieval of land registration information in the event of lost documents or ownership transfer. It would also allow authorized ministries, departments and agencies, such as the Kaduna State Internal Revenue Service, to track and look up information by enabling tax administrators to securely view and review tax declarations by residents. It would also be foundational in allowing the Service and other ministries, departments and agencies to create a 360-degree view of residents' information.

Other ministries, departments and agencies that would benefit from this implementation: Kaduna State Scholarship and Loans Board and Kaduna State Internal Revenue Service.

K. Kaduna State Ministry of Human Services and Social Development

Potential use cases:

(a) National Identification Number enrolment;

(b) National Identification Number validation;

(c) Monitoring and tracking;

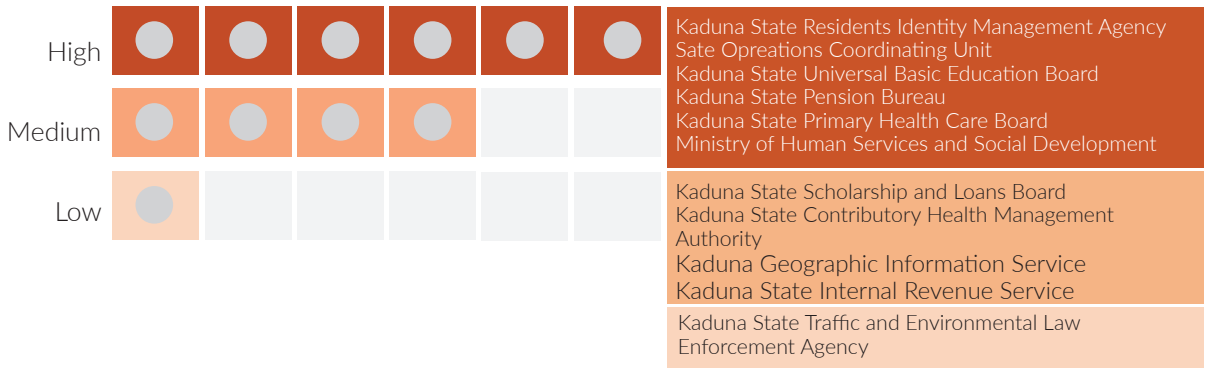
(d) Payment verification and tracking.

Description: Digital identity would be used as a tool to ensure that out-of-school Almajiri (children sent to informal Islamic schools, but who also beg on the streets for their sustenance) are taken off the streets, digitally enrolled, placed in school and monitored. Only then would cash payments be disbursed to the students' households. The Kaduna State government is working with the United Nations Children's Fund, which has a well-established process for the distribution of benefits.

Benefits and potential impact: Children and their parents or guardians would be enrolled. Each child would be assigned to a school based on their geographical location, and information about the students would be shared with the school and social workers, so that the students could be monitored and tracked. Attendance would be monitored and used as the basis for monthly clearance and payments. The entire system would create an incentive for parents to keep their children in school, while also encouraging others in the communities to join the programme.

This use case could easily be replicated for other pressing interventions, such as those targeting

Figure I: Initial assessment of ministries, departments and agencies



young girls hawking on the streets. It could also be scaled up across other States in Nigeria (and in other countries) that are looking to address the challenge of Almajiri.

V. Preliminary assessment of use cases of digital identity for ministries, departments and agencies

Based on initial interviews, six ministries, departments and agencies seem to have high-value potential use cases, four moderate-value potential use cases, and one low-value potential use case. Based on this appraisal, the ministries, departments and agencies have been categorized as high, moderate or low priority for the implementation of the proposed digital identity use cases, as shown in figure I.

The ministries, departments and agencies assessed as high priority will be subject to further review. A shortlist will then be drawn up from the entities and the use cases will then be implemented, either exclusively by the Kaduna State government or with the support of ECA. Any entity – of low, medium or high priority – not shortlisted under this exercise may still implement a use case itself if it so chooses.

VI. Aligning use cases with the development goals of the Kaduna State government and the Government of Nigeria

The Kaduna State government is seeking to transform the State from an agrarian to a knowledge-based economy. It put forward its strategies to achieve the goal in the Kaduna State Development Plan 2021–2025.[8] Under the Plan, the government will seek to focus its development activities around six core pillars: financial inclusion, information infrastructure, governance, security and justice, infrastructure development and economic value addition.

The quest for the establishment of a digital economy in the State of Kaduna is also aligned with the stated plans of the federal Government. Although Nigeria has significant development gaps across virtually all economic sectors,9 the federal Government, through some of its high-ranking offices, in particular the Office of the Senior Special Assistant to the President on Sustainable Development Goals, has been taking steps to resolve the gaps, with the support of development organizations such as the World Bank, ECA and the United Nations Development Programme. In 2021, the federal Government launched the Nigeria Sustainable Development Goals Implementation

8 Kaduna State government, "Kaduna State Development Plan 2021–2025: transforming Kaduna into a knowledge-based economy".
9 International Monetary Fund, "Nigeria: technical assistance report – additional spending toward Sustainable Development Goals", Country Report, No. 20/177 (Washington, D.C., 2020).

Table 3: Linkages between potential use cases and the development goals of the Kaduna State government and the Government of Nigeria

Sector	Ministry, department and agency	Potential use cases	Broad strategies under the State Development Plan 2021–20251	Sustainable Development Goals and Government of Nigeria strategies2
Education	Kaduna State Universal Basic Education Board	Digital verification Remote monitoring	Increase coverage and equitable access through the school expansion policy, advocacy and awareness-raising, and the promotion of community participation Improve teacher availability and quality at all levels through quality assurance and the strengthening of the monitoring and evaluation system Ensure continued provision and maintenance of school infrastructure, and provide adequate staffing and an enhanced Education Management Information System Provide scholarships to indigent students, including those with special needs and overachievers	Indicator 4.3.1 of the Sustainable Development Goals Facilitated by the Federal Ministry of Education
	Kaduna State Scholarship and Loans Board	Digital verification Data uploads		
Health	Kaduna State Contributory Health Management Authority	Digital enrolment	Remove financial barriers to healthcare access through risk pooling and risk sharing to cater for poor and vulnerable people	Indicator 3.8.2 of the Sustainable Development Goals Facilitated by the National Health Insurance Scheme
	Kaduna State Primary Health Care Board	Tracking of pharmaceuticals Integration of medical records with the database of the Kaduna Residents Identity Management Agency National Identification Number validation	Improve monitoring through regular integrated supportive supervision Ensure the availability of drugs, vaccines, ready-to-use therapeutic food, and consumables in the health sector through an innovative unified health supply chain	
Security, law and justice	Kaduna State Traffic and Environmental Law Enforcement Agency	Remote verification	Establish effective monitoring and evaluation mechanisms	Sustainable Development Goal 16 Facilitated by the Federal Road Safety Commission and the Nigeria Police Force.

1 Kaduna State government, "Kaduna State Development Plan".
2 Nigeria, National Bureau of Statistics, "Review of Baseline Report and Realignment of the National Statistical System with SDGs" (Abuja, 2021).

Sector	Ministry, department and agency	Potential use cases	Broad strategies under the State Development Plan 2021–20251	Sustainable Development Goals and Government of Nigeria strategies2
Social development	State Operations Coordinating Unit	Remote monitoring Digital verification	Develop a robust database for young people, women and vulnerable groups Continuously develop the capacities of young people, women and persons with special needs Boost the employment and empowerment of young people, women and vulnerable groups	Sustainable Development Goals 5, 8 and 10 Facilitated by several federal ministries, departments and agencies, coordinated by the Office of the Vice President
	Ministry of Human Services and Social Development	National Identification Number enrolment National Identification Number validation Monitoring and tracking Payment verification and tracking		
Planning, budget and revenue mobilization	Kaduna State Internal Revenue Service	360-degree views of resident records National Identification Number validation Digital verification	Continuously eliminate all revenue leakages and improve the generation and collection of internal revenue Expand revenue generation and collection capacity	Indicator 17.1 of the Sustainable Development Goals Facilitated by several federal ministries, departments and agencies, notably the Federal Inland Revenue Service
	Kaduna State Residents Identity Management Agency	National Identification Number validation	Improve the database of State residents	Sustainable Development Goal 16 Facilitated by several federal ministries, departments and agencies, in particular the National Identity Management Commission
	Kaduna Geographic Information Service	National Identification Number validation		Sustainable Development Goal 11 Facilitated by several federal ministries, departments and agencies, including the Federal Ministry of Works and Housing
Governance and administration	Kaduna State Pension Bureau	Remote verification	Continuous enforcement of anti-corruption rules through institutional strengthening to tackle corruption in the public service	Indicator 1.3 of the Sustainable Development Goals Facilitated by several federal ministries, departments and agencies, in particular the National Pension Commission

Plan 2020–2030,10 in which it set out the strategies and institutional frameworks that needed to be developed for Nigeria to achieve the Goals. The linkages between all the potential digital identity use cases and the development ambitions of the Kaduna State government and the federal Government are shown in table 3.

The prime objective of a digital identity system, however, is to enable inclusive, sustainable economic development and secure delivery of public services over mobile networks and the Internet where proof of identity is required. The implementation of a digital identity system is not an end in itself. The primary goal of this use-case prioritization exercise is therefore to enable the Kaduna State government to utilize and link the power of digital identities for the attainment of envisaged economic development plans and strategies, as reflected in the State's digital strategy[11] and development plan[12] (see figure II).

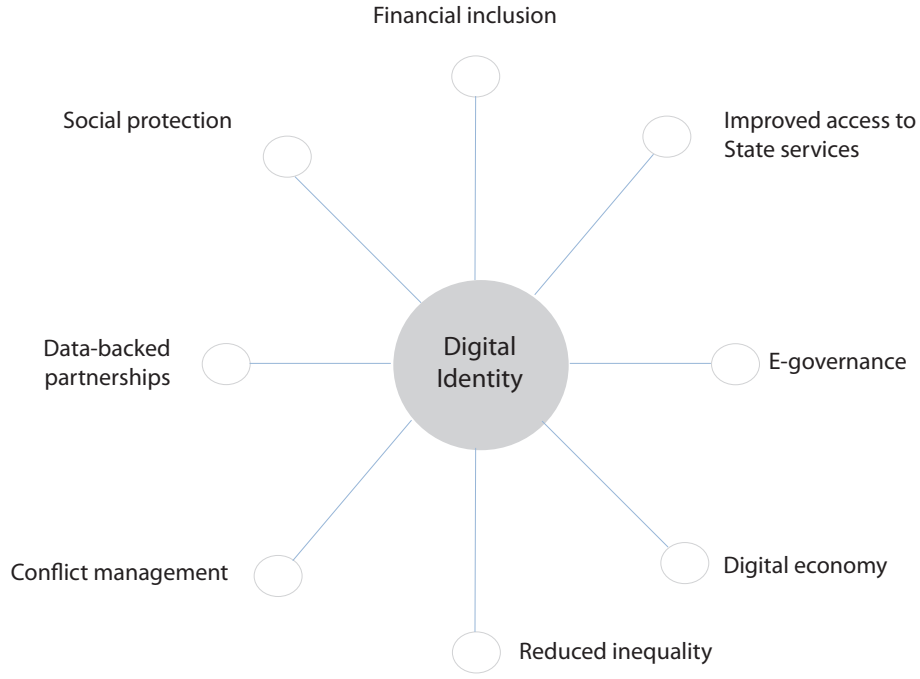
The consultants intend to hold a more comprehensive discussion with shortlisted ministries, departments and agencies on the specific key performance indicators that individual use cases would be designed to target. This discussion process will commence once a final list of ministries, departments and agencies has been confirmed at the end of the evaluation process.

VII. Evaluation matrix

An evaluation matrix has been drawn up that could be used to rank the proposed use cases. The proposed matrix is based on highly relevant criteria, which are based on digital identity use-case readiness among the ministries, departments and agencies assessed.

The use cases are evaluated as complete processes for each ministry, department and agency. A complete process comprises software, hardware,

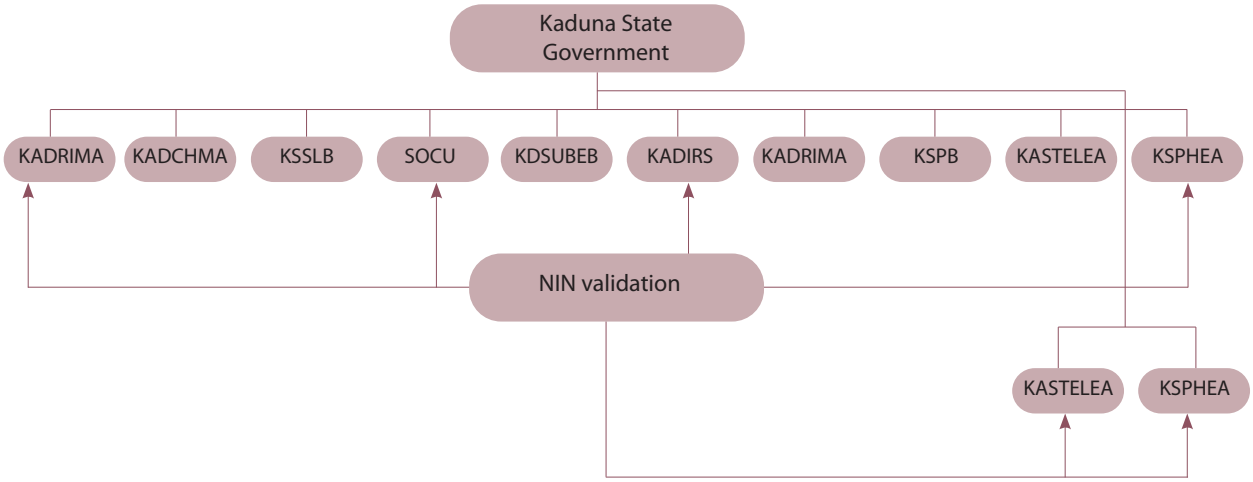
Figure II: Expected development outcomes from the implementation of digital identity in Kaduna



Source: Slide presentation by Kaduna Residents Identity Management Agency.

10 Nigeria, Office of the Senior Special Assistant to the President on Sustainable Development Goals, Nigeria Sustainable Development Goals Implementation Plan 2020–2030.
11Office of the Chief Information Officer, Kaduna State, "A digital strategy for the government and people of Kaduna State". Available at https://kdsg.gov.ng/wpfd_file/digital-strategy-for-kaduna-state-final-4/.
12 Kaduna State government, "Kaduna State Development Plan".

Figure III: Linking use cases to ministries, departments and agencies: example of National Identification Number validation



Abbreviations:

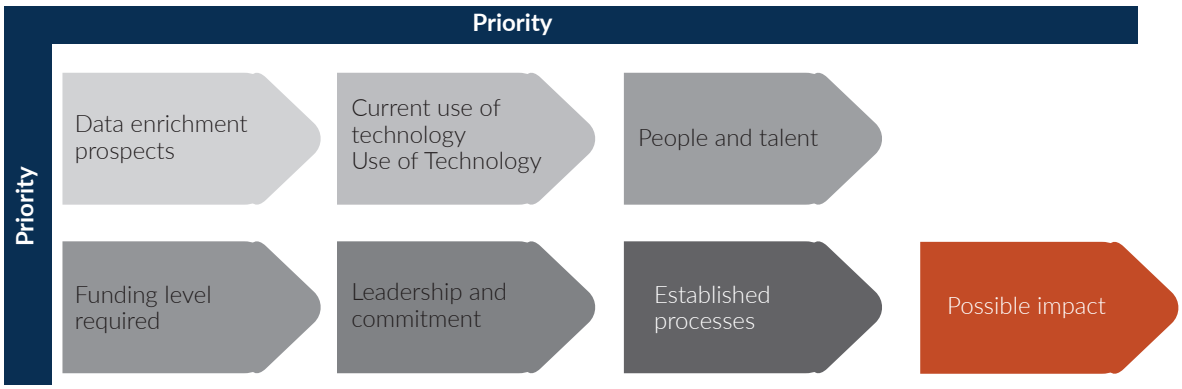
KADRIMA, Kaduna State Residents Identity Management Agency; KADCHMA, Kaduna State Contributory Health Management Authority; KADGIS, Kaduna Geographic Information Service; KADIRS, Kaduna State Internal Revenue Service; KASTELEA, Kaduna State Traffic and Environmental Law Enforcement Agency; KDSUBEB, Kaduna State Universal Basic Education Board; KSPB, Kaduna State Pension Bureau; KSPHEA, Kaduna State Primary Health Care Board; KSSLB, Kaduna State Scholarship and Loans Board; MHSSD, Ministry of Human Services and Social Development of the State of Kaduna; SOCU, State Operations Coordinating Unit.

Note to the evaluators: The titles of the use cases in table 2 and section IV are for informational purposes only. The design and implementation of a use case is likely to vary from one ministry, department or agency to another, even when the use case bears the same title or description. For instance, the Kaduna State Universal Basic Education Board will probably implement the digital verification use case differently from the Kaduna State Pension Bureau. The features and processes of a use case will differ from one ministry, department or agency to another. The uniqueness of these use cases cannot be overemphasized.
There are also nuanced distinctions between similarly titled use cases. National Identification Number validation, for example, may not be the same as digital verification. In the present context, National Identification Number verification refers to a system used to confirm that the 12 digits of the National Identification Number are valid when the National Identity Management Commission database is queried, while digital verification refers to a system used to securely identify a person and to link the person to the database of the ministry, department or agency that requires the digital identity of a resident. The next phase of the prioritization process will include an in-depth analysis of the unique features and attributes of a use case for a ministry, department or agency..

people and processes. Since the use cases are unique and specific to each ministry, department and agency, evaluations are carried out on each ministry, department and agency, not on the individual use-case modules mentioned in table 2 and section IV. National Identification Number validation, for example, is reflected in five of the use cases across the ministries, departments and agencies (see figure III). The consideration for evaluation is not National Identification Number validation as a use case on its own, but rather validation of the number is considered as a unique

Figure II: Matrix infographics

It is proposed that the components of the matrix be weighted to ensure that a higher score is assigned to the most critical elements of the matrix.



element in each of the six identified use cases in which this validation occurs.

Figure IV outlines the critical factors for the successful deployment of technology solutions in developing economies.

This matrix consists of seven parameters (see figure IV), with the possible impact anchoring the other six. Each of the parameters have been weighted on a sliding scale, from highest to lowest. The sum of the weighted results for each parameter enables a less subjective view of which use cases may eventually be adopted for implementation. Table 4

Table 1: Framework for determining the use-case readiness of ministries, departments and agencies

Competitors	Objective	Subjective	Weighting
Possible impact		●	25
Established processes	●		20
Leadership and commitment	●		15
Funding required	●		10
People and talent		●	10
Current use of technology		●	10
Data enrichment		●	10

shows the weightings allotted to each evaluation criterion.

The scope of the various elements of the framework are defined and discussed in the section below to provide a more in-depth understanding of the proposed model.

A. Evaluation parameters

1. Possible impact

Weighting: 25.

Definition: In this matrix element, the digital identity use cases are ranked by their projected impact on completion, which is calculated taking into account both the positive and negative effects within the project assessment boundary. Assessment will be based on the following criteria:

(a) Clear and achievable outcomes;

(b) Greatest good to the greatest number of people;

(c) Alignment with the Kaduna State Development Plan 2021–2025;

(d) Inter-agency effects and collaborative impact;

(e) Prospects for partnerships with development organizations and additional funding opportunities;

(f) Reduction of socio-digital inequality (especially in areas in which marginalized segments of the population – such as women, older people, poor people and people in rural communities – are negatively affected when digital identity solutions are implemented);

(g) Solution to a defined and pressing problem.

Assignment of points: The three-point Likert scale will be used to measure opinions for this parameter and other parameters.

Question: Will the implementation of the use case identified impact <MDA Name> in 2 or more of the assessment areas mentioned above?

Points:

Agree	3
Neutral	2
Disagree	1

2. Established processes

Weighting: 20.

Definition: Clear and concise processes are precursors to implementing a successful technology solution. In the implementation of digital identity, this means that the ministry, department or agency has a clear-cut process laid out. The strength of such processes hinges on how closely they deliver the core mandate of the ministry, department or agency.

The assessment of this component as a critical success factor is based on the following:

(a) Whether there is an operations manual or other documentation detailing the process;

(b) Whether there are clear boundaries between roles;

(c) Whether there is a process to check the data collected, whether there is a second-level validation to check data entry and decision, and whether a maker or checker process has been implemented;

(d) Whether the goals and objectives of the processes are clear;

(e) How likely it is that there will be seamless touchpoints and intuitive interactions between the ministry, department or agency, and the general public, when the proposed use case is implemented.

Question: <MDA Name> processes are clearly defined showing a clear distinction between job functions and lines of command.

Points:

	Agree	3
	Neutral	2
	Disagree	1

3. Funding level required

Weighting: 15.

Definition: Funds available for a project are strongly correlated with the feasibility of the project. In the assessment of the use cases, points will be assigned based on the funding bracket of the project.

To assess this objectively, a proposed cost will be established for each project. The cost components will be categorized as follows:

(a) Hardware cost;

(b) Software or platform required;

(c) Training;

(d) Implementation cost;

(e) Post-implementation review.

Assignment of points: Using the five-point Likert scale as a measure of opinions.

Question: <MDA Name> use case implementation is estimated to cost?

Points:

	Under $50,000	3	Reasonable
	$50,001–$200,000	2	Fair
	Above $200,000	1	Unreasonable

4. Leadership and commitment

Weighting: 10.

Definition: The objective of this evaluation is to identify people in each ministry, department or agency who are capable of pushing for the implementation and adoption of the use case. Information and communications technology projects typically have a higher success rate if the head of the agency and accompanying team act as project champions.

Assignment of points: Since the consultants do not have the necessary background to assess the extent to which the heads of the ministries, departments and agencies and their teams are prepared for the implementation of digital identity use cases, it is proposed that this criterion should be scored exclusively by the Chief Information Officer and the Kaduna State Residents Identity Management Agency.

Question: How committed is the leadership of <MDA Name> towards driving the process of implementing any use case as may be approved?

Points:

	Committed	3
	Neutral	2
	Not Committed	1

5. People and talent

Weighting: 10.

Definition: The talent required to manage systems is an integral part of any successful implementation of digital identity.

Assignment of points: The index for measuring people and talent is fluid, since capacity can be outsourced and people can be recruited to ensure that a solution is successful. The score assigned to the ministries, departments and agencies will be based on their current situations and their potential to quickly fill roles to enhance systems and processes. It is also important to consider how easy it would be for the ministry, department or agency, if necessary, to bring in external resources

or talent to implement and operate the use-case systems.

Question: How deep are the digital skills of relevant staff at <MDA Name>?

Points:

	Deep	3
	Fair	2
	Weak	1

6. Current use of technology

Weighting: 10.

Definition: Current use of technology is defined as the exposure to technology of the ministry, department or agency, its staff and its processes. Any technology already used lowers the barrier to the adoption of digital identity enhancements.

The following areas will be assessed:

(a) The current extent of digitization and digitalization at the ministry, department or agency;

(b) Digital processes and digital databases already used;

(c) Communications infrastructure;

(d) Level of digital skills of staff, especially those that may be involved in the processes of the proposed use case.

Assignment of points: The scoring system adopted for this metric is designed not to downgrade or otherwise penalize ministries, departments and agencies with low technology adoption, since the barrier to implementation may not be high for certain use cases, such as National Identification Number verification.

Question: How exposed to technology is <MDA Name>?

Points:

	High exposure	3
	Limited exposure	2
	No exposure	1

7. Data-enrichment prospects

Weighting: 10.

Definition: The master database management system is a data asset for the Kaduna State government. Ministries, departments and agencies are encouraged to have plans to enrich the central data repository.

Assignment of points: The purpose of this criterion is to identify and rank agencies based on the quality and quantity of relevant data they can feed into the master database management system. Any data to be uploaded into the master database management system for data-enrichment purposes would have to be predefined.

Question: What is the prospect of <MDA's Name> contributing to the enrichment of master database management data?

Points:

	High	3
	Modest	2
	Low	1

B. Conducting the evaluation

It is proposed that the evaluation be carried out on the six highest-rated ministries, departments and agencies. The evaluation should be carried out independently by the consultants and by the two nominated members of the Kaduna State government team working on this consultation – the Chief Information Officer, Gerard Ilukwe; and the Executive Secretary of the Kaduna Residents Identity Management Agency, Zayyad Tsiga. The agreed date and time should be as soon as possible. The consultants have developed an online form for the evaluation of the potential use cases (see figure V). The form can be accessed at https://docs.

Figure V: Cover page of the proposed evaluation form

google.com/forms/d/1hqgRK6SctNaXyiav3VCRp8QglDRdZXRYF8kp13serpk/edit?ts=63085a5.

The Kaduna State government will use the results of the evaluation exercise to decide which use cases to implement, either with internal resources or with the support of ECA. The views and conclusions of the evaluators shall not be binding on the Kaduna State government.

VIII. Implementation considerations

A. Trust environment for digital identities

In addition to the development of a policy and strategy document to govern digital identities, Kaduna State seems to need a regulatory framework to create a trust environment for data governance and the use of digital identities in the public sector. Although it may be possible to implement a small number of use cases under the existing environment by setting up the necessary rules to support the use cases, such as through executive instruments, the absence of a coordinated digital identity distribution system, a specific digital identity system, data protection laws and regulatory systems for data governance may create opportunities for abuse or misuse of digital identities, which would probably limit the spread and overall benefits of digital identities in the public sector. There is good evidence to suggest that the current laws that have a bearing on digital identities in Kaduna (in particular the Kaduna State Residents Identity Management Agency (KADRIMA) Law, 2021) may not be sufficient for the use-case implementations currently being proposed. In addition, to reduce systemic risks related to digital identities, it may be necessary to establish a body that is legally mandated to develop and administer regulations that protect privacy and that can enable secure, interoperable digital identity systems in the public sector of Kaduna State, and possibly also in the private sector. The consultants would actively participate in the in-depth analysis sessions proposed between ECA, the Kaduna State government teams, the Ministry of Justice of Kaduna, the National Identity Management Commission and the World Bank, to explore this issue in greater detail.

B. Master database management and interoperability

There is presently a need for the Kaduna State government to create an integrated system

for digital interoperability within the public sector. Users of the system would be required to provide credentials through a system that respects their privacy and includes enhanced security controls. Authorized users at ministries, departments and agencies in Kaduna would be able to exchange data and databases among themselves using authorized users, devices and applications.

As a first step, the State has already developed a master database management system for its ministries, departments and agencies. Through the Kaduna State Residents Identity Management Agency, the Kaduna State government has also developed a functional identity system and database that has been integrated into the master database management system. The system is currently implemented by the information technology service provider that is the technology contractor to the Kaduna State government. It is designed to be an enterprise-wide digital identity database for ministries, departments and agencies in the State. So far, only the Kaduna State Residents Identity Management Agency, the Kaduna State Internal Revenue Service and the Kaduna Geographic Information Service are reported to have achieved connectivity with the master database management system. The relatively slow roll-out of the system and limited uptake by ministries, departments and agencies will be a major limiting factor if any use case requires full interoperability within the public sector.

There are three other equally important limitations. First, although technical operability may already be feasible, the absence of a legal framework governing data transfer and access to and distribution of digital identities in Kaduna will increase the risk of implementing interoperable digital identity use cases. Second, Kaduna does not yet have a State-wide system for verifying the digital (or even physical) identities of its residents. Third, the current design of the master database management system may limit or enable the interoperability of digital identity databases if the function is required in the implementation of a use case. The capabilities and agility of the master database management system seems to depend on the direction taken in terms of policy, technology and the standards required to operationalize a digital identity use case. The question that needs to be asked is whether the current plan for the implementation of the master database management system will be modified or abandoned when a use case is implemented. Although the consultants have had useful interactions with an information technology service provider regarding master database management systems, they still need to fully understand the current architecture and future direction of the enterprise software of the Kaduna State government for the proposed implementations of digital identity.

C. Ownership of use cases by ministries, departments and agencies

Although the Kaduna State government is leading the way in Africa in implementing the digital economy, the capabilities and sophistication of its digital services can still be considered nascent. The potential use cases discussed extensively in the present report have been identified by the consultants in conjunction with the team from the government.

Individual ministries, departments and agencies need to take ownership of the use case that has been identified as potentially useful to improve the scope, quality and ease of delivery of their public services. One way for them to do this is to demonstrate their understanding and eagerness to implement a use case by assigning and dedicating a senior executive to the process, identifying linkages with the development plan key performance indicators that would be targeted by a particular use case, and operationalizing the use case in conformity with the implementation plan (and other related documents) that was developed by the consultants in conjunction with ECA and the team from the Kaduna State government. In this respect, the capacity of ministry, department and agency staff to implement any selected digital

identity use cases would need to be significantly enhanced. Unless they take ownership of a use case, it is impossible for ministries, departments and agencies to guarantee a consistently positive user experience and create a high level of trust after they have implemented a use case.

D. Awareness-raising

To increase and sustain the momentum that is gradually being generated through the prioritization and implementation of digital identity use cases, key stakeholders (and even the general public) need to be made aware of the potential benefits of the use cases and digital identities in general. This would likely increase acceptance, usage and end-user trust of any proposed digital identity solution.

IX. Next steps

The follow-up measures needed and the parties responsible for the measures are set out in table 5.

Table 5: Anticipated follow-up measures

Measure	Responsibility	Deadline	Remarks
Review and adopt the final draft of the use-case prioritization report	Kaduna State government ECA	31 August 2022	The criteria discussed extensively in the present report will be used to assess and rank the final group of ministries, departments and agencies selected, and the use cases adopted for implementation.
Hold an evaluation session to shortlist the final group of ministries, departments and agencies that have high-value use cases for which implementation is recommended	Kaduna State government Consultants	1 September 2022	The evaluators from the Kaduna State government may require a specific mandate to carry out the scoring and rating of shortlisted use cases.
Conduct in-depth analysis sessions with the final group of ministries, departments and agencies to commence the process of operationalizing the high-value use cases	Kaduna State government ECA Consultants	15 September 2022	Intensive sessions will be held with each ministry, department and agency selected for a prospective use-case implementation to retrieve information on processes, policies, technology, existing infrastructure, opportunities, capacity gaps, etc.

Annex

Enhancing the functionality of digital identity systems: use-case prioritization framework for the Kaduna State government

Information data sheet[13]

Ministry, department or agency	Mandate	Process	Database size	Pain points	Potential use case	Likely benefits	Priority[14]
Kaduna State Residents Identity Management Agency	Create and manage a reliable database for all residents.	Digital enrolment	4.7 million (52 per cent coverage)	Digital capturing National Identification Number validation	National Identification Number validation	Cross-cutting impact, enabling the use of verified digital identities	High
Kaduna State Contributory Health Management Authority	Provide affordable health-care services for residents, with financial risk protection.	Enrolment	550 000	Digital enrolment Identity duplication	Digital enrolment Digital verification	Seamless provisioning Planning Linkages with subenrollees	Moderate
Kaduna State Scholarship and Loans Board	Identify, select and empower qualified citizens for the current and future staffing needs of the State.	Merit scholarships Need-based scholarships	About 25 000 digital transactions per year	Integration with Kaduna State Residents Identity Management Agency and the master database management system Integration with the State Social Register	Digital verification Data uploads	Increase in loan applications Seamless data uploads	Moderate
State Operations Coordinating Unit	Oversee the identification and enrolment of poor and vulnerable households in the State Social Register.	State Social Register	2.6 million people About 600 000 households	Integration with the Kaduna State Residents Identity Management Agency and the master database management system	Remote monitoring Digital verification National Identification Number validation	Process improvements	High
Kaduna State Universal Basic Education Board	Provide free and compulsory basic education.	Registration of teachers and pupils	2.5 million pupils 35 000 teachers	Digital enrolment Database management	Digital verification Remote monitoring	Reduction in the number of out-of-school children Improved payroll management	High

13 The list of ministries, departments and agencies is in the order in which the consultants met them during the field mission.
14 As assessed by the consultants.

Ministry, department or agency	Mandate	Process	Database size	Pain points	Potential use case	Likely benefits	Priority14
Kaduna State Internal Revenue Service	Collect and account for internally generated revenue.	Taxation Vehicle registration Property charges		Data availability Database integration Central billing system	360-degree views of resident records National Identification Number Validation Digital verification	Higher revenue	Moderate
Kaduna State Pension Bureau	Manage pensions.	Defined Benefits Scheme Contributory Benefits Scheme	16 955 pensioners in the Defined Benefits Scheme	Implementation of proof of life	Remote verification	Reduction in travel times for pensioners Process improvements	High
Kaduna State Traffic and Environmental Law Enforcement Agency	Enforce traffic and environment laws.	Automatic number-plate recognition	250 000 motor vehicle records	Direct debit of offenders' bank accounts	Remote verification		Low
Kaduna State Primary Health Care Board	Promote general health; prevent and manage diseases and illnesses.	Inventory tracking	5 million visits per year; currently serving about 30 per cent of the population	Medical records Digitalization of inventory management	Tracking of pharmaceuticals Integration of medical records into the database of the Kaduna Residents Identity Management Agency National Identification Number validation	Process improvements	High
Kaduna Geographic Information Service	Provide land administration services.	Electronic land-management systems	180 000 fully digitized land records	National Identification Number verification	National Identification Number validation	Higher revenue	Moderate
Ministry of Human Services and Social Development of the State of Kaduna	Ensure the welfare of women, children, socially disadvantaged people and persons with disabilities in Kaduna.	Enrolment and monitoring (with the assistance of the United Nations Children's Fund)	Almajiri (10 000) Girl hawkers (16 000)	Identity verification Monitoring	National Identification Number enrolment National Identification Number validation Monitoring and tracking Payment verification and tracking	Reduction in the number of out-of-school children	High

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