FEDERAL REPUBLIC OF NIGERIA
NIGERIA DIGITAL IDENTIFICATION FOR DEVELOPMENT PROJECT
TERMS OF REFERENCE
DATA AND INTEGRATION ARCHITECT

1. BACKGROUND

Of the 187 million living in Africa's most populous country, only about 30% have had their births registered - this figure drops to 19% in rural areas and to 7% within the poorest quintile of the population. Less than 50% of residents have any form of ID card, whilst only 9% of individuals have a national ID number (NIN). Based on the Global Findex Survey[1] results of 2018, 33% of those who do not have ID cite that it is too difficult to obtain, whilst approximately 20% cite a lack of supporting documentation.

Nigeria hosts a fragmented ID landscape which incurs significant costs on the Federal Government (FGN). Over 13 government agencies (National Identity Management Commission, National Population Commission, Central Bank of Nigeria, Independent National Electoral Commission, Nigerian Communications Commission and others) and at least 3 state agencies offer ID services in Nigeria. Many of these agencies, capture biometrics and issue ID cards independently without data links with other systems, resulting in duplication and sub-optimal utilization of scarce resources.

The FGN has indicated a strong desire to harmonize the existing identification ecosystem towards developing a foundational identification platform which can be leveraged to improve service delivery. Based on completion of an initial identification ecosystem diagnostic in July 2016, the Vice President convened a workshop of all identification stakeholders in December 2016 which confirmed the need to develop a Strategic Roadmap[2] charting the way forward. The Strategic Roadmap was then prepared with the support of the World Bank Group, and highlighted the need for a minimalist, foundational, and eco-system-based approach to identification in the country. The Roadmap was endorsed by the Harmonization Committee at a second Vice Presidential Level Workshop attended by over 200+ identification stakeholders on January 31, 2018; the group moved to submit the Roadmap to the Federal Executive Council for final government endorsement.

Consequently, the FGN applied for a credit from the World Bank and intends to apply part of the proceeds of the credit to increase the number of persons in Nigeria who have government-recognized proof of unique identity that enables them to access services. The Project will be implemented by the National Identity Management Commission (NIMC) based in Abuja, Nigeria. NIMC, through the Federal Ministry of Finance, has obtained a Project Preparation Advance (PPA) to enable it finance preparatory activities for the Project. Some activities shall be retroactively financed by NIMC prior to approval of the PPA.

---

[1] World Bank Global Financial Inclusion (Global Findex) Database
[2] A Strategic Roadmap for Developing Digital Identification in Nigeria: Draft Report for Review, June 2017

2. OBJECTIVES OF THE ASSIGNMENT

- Defines the logical and physical data models within the enterprise in line with the business requirements
- Defines data interchange specification between function elements of the system
- Defines the integration layer of the Enterprise
- Designs API's in accordance with business needs
- Ensures that data standards, modelling and governance are aligned with the best practices of Data Protection in Nigeria.

3. SCOPE OF SERVICES

The Data and Integration Architect shall:

1. Establish the data integration architecture, workflow and structures for the ID4D project;

2. Develop a ID4D Data Integration Roadmap that would guarantee efficient and legally responsible ID databases integration across the ecosystem;

3. Collaborate with other Technical team members to ensure NIMC Project Implementation Unit (PIU) team has the best data to ensure objectives of the ID4D project are met;

4. Lead the data modelling and governance efforts of the ID4D team;

5. Develop the appropriate data structure to efficiently manage complex biometric data from different ecosystem partners;

6. Be responsible for the recommendation of appropriate databases to be used for the ID4D project;

7. Recommend appropriate integration technologies (APIs, message-oriented middleware, streaming, event processing systems, etc.) needed for the ID4D project;

8. Ensure data integration activities of the ID4D team are results of adaptation of best-practice Data integration architectural principles to Nigeria's environment and laws;

9. Lead ID database integration projects of the ID4D ecosystem partners;

10. Develop regular progress reports on data integration performance to ensure quality;

11. Provide solutions to data integration architecture related problems;

12. Be responsible for querying and ensuring information captured in the data dictionary is correct and constantly updated;

13. Organise trainings for data integration architects of ecosystem partners, to ensure knowledge transfer on Nigerian architectural policies, procedures and standards.

14. Continuously develop the data integration architecture through iterative

architectural and technology techniques;

15. Provide input to well-documented, evidence-based data regulations compliance reports to be submitted to relevant oversight stakeholders and incorporated into the project annual reports;

16. Ensure effective and collaborative relationships with database units of ecosystem partners;

17. Carry out any other relevant periodic duties that may be assigned by the PIU Technical Lead.

4.   REPORTING, LOCATION AND TIME SCHEDULES

The Data Integration Architect will report to the Technical Lead Project Coordinator in NIMC Headquarters Abuja.

The commencement of the services shall come into force and effect on the date (the "Effective Date") of the Client's notice the Data Integration Architect to begin carrying out the services.

5.   QUALIFICATION OF THE DATA INTEGRATION ARCHITECT

The Data Integration Architect shall have the following minimum educational qualifications and experience:

- At least 5 years of professional experience in data and integration architect
- Proven Data modelling experience with key understanding of DBMS development (cloud and on-premise) including implementation practices, and project life cycle (requirements gathering, architecture, design, implementation, tuning, migration, and decommissioning)
- Proven experience in the process of extracting data from multiple sources
- Deep understanding of Big Data concepts, CAP Theorem and migration techniques from an established RDBMS to NoSQL and vice-versa
- Experience in different data subject areas such as billing, personal attributes
- Experience in supply chain management etc.
- Skilled in data administration, data modelling, tuning, ensuring development teams have the optimum environment in which to deliver applications to include API design, schemas, indexing strategies, database layout, and loading/updating strategies
- Ability to perform requirements gathering on existing environment and documentation
- Experience and knowledge of integration methodology and technologies e.g. SOAP/REST services, JSON, Javascript, Python, NodeJS, API's, enterprise messaging, etc.
- Good understanding of Architecture, Integration and Design Software Patterns
- Experience in enterprise projects with complex applications integrated with each other.
- Demonstrable experience of working with key business internal and external stakeholders and multiple delivery partners

- Relevant certifications and prove of continuous professional development
- An understanding of confidentiality issues, data governance and data protection requirements
- Relevant degree in IT Engineering, Computer Science, or a related field
- Experience in working for any international donor-funded program will be considered an asset
- Experience in projects involving multiple partner institutions will be considered an asset
- Fluency in written and spoken English. Local languages are an asset

6. DETAILED SKILLS AND EXPERIENCE

Area	Description
Data modelling	Understands different tools and is able to compare between different data models. Able to reverse engineer a data model from a live system. Understands industry recognised data modelling patterns and standards.
Data standards	Develops and sets data standards for an organisation. Communicates the business benefit of data standards, championing and governing those standards across the organisation.
Metadata management	Understands a variety of metadata management tools. Designs and maintains the appropriate metadata repositories to enable the organisation to understand their data assets.
Turning business problems into data design	Works with business and technology stakeholders to translate business problems into data designs. Creates optimal designs through iterative processes, aligning user needs with organisational objectives and system requirements.
Data analysis and synthesis	Translates data into valuable insights that inform decisions. Involves teams in analytics and synthesis to increase consensus and challenge assumptions. Identifies and utilises the most appropriate analytical techniques. Has an understanding of analytical tools and is numerate. Is aware of and keeps up to date with advances in digital analytics tools and data manipulation products. Collects, collates, cleanses, synthesises and interprets data to derive meaningful and actionable insights.
Data governance	Understands data governance and how it works in relation to other organisational governance structures. Participates in or delivers the assurance of a service.

Problem resolution	Logs, analyses and manages problems in order to identify and implement the appropriate solution. Ensures that the problem is fixed.

7.   FACILITIES AND INFORMATION TO BE PROVIDED

Adequate office space, with furniture and internet facilities, shall be assigned to the Data and Integration Architect.

8.   ESTIMATED EFFORT LEVEL AND DURATION OF THE ASSIGNMENT

The duration of the assignment is initially for 12 months but will renewed subsequently on an annual basis subject to satisfactory performance. The contract type is Time Based.