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## **Terms of Reference for the Recruitment of a Data Scientist**

**Job title:** Data Scientist (IT and Data Systems Integration)

**Department:** Seconded to Health Intelligence Center (HIC)

**Reports to:** Director of HIC and the Managing Director of CIIC-HIN.

**Number of positions:** 1

### **1. Background**

The Center for Impact, Innovation and Capacity Building for Health Information Systems and Nutrition (CIIC-HIN) is a dedicated research organization committed to advancing evidence-based health policy, strengthening health systems, and improving public health outcomes. Guided by its mission, CIIC-HIN works at the intersection of research, innovation, and capacity building to address pressing health challenges through practical and sustainable solutions.

The Ministry of Health (MoH), in collaboration with CIIC-HIN and with financial support from the Gates Foundation, is implementing a 24-month project aimed at institutionalizing sustainable mechanisms for improving maternal health. The project focuses on integrating Quality-of-Care (QoC) indicators into national health information systems and leveraging digital innovations, including virtual reality (VR)-enabled clinical support tools. These efforts contribute to Universal Health Coverage (UHC) by supporting remote clinicians in low-resource settings and expanding access to quality care.

A key component of the project is strengthening institutional capacity for digital systems integration, operational data management, and analytics. This requires a Data Scientist with a strong Information Technology background who can combine IT systems support, interoperability, database and pipeline management, and data analytics to ensure that data from DHIS2, the PBF portal, eBuzima, accreditation systems, Virtual Care, CRVS, and other digital health platforms are integrated and transformed into actionable insights.

To support this work, CIIC-HIN in collaboration of MOH would like to recruit a Data Scientist who will be seconded to the Health Intelligence Centre (HIC)/MoH. The position is designed as a hybrid IT and data science role to strengthen system integration, analytics, and technical support for maternal health service quality improvement.

### **2. Objectives of the Assignment**

The Data Scientist will support the HIC/MoH to:

- Strengthen systems integration and digital interoperability for maternal health, quality-of-care, and accreditation-related data.
- Design, maintain, and optimize reliable data pipelines, databases, and data exchange mechanisms across priority health platforms.
- Generate actionable analytics, dashboards, and technical outputs to improve decision-making and maternal health outcomes.

- Provide technical support and capacity building on integrated digital systems, data quality, and use of data for operational and policy decisions.

### **3. Scope of Work / Key Responsibilities**

The Data Scientist will be responsible for the following tasks:

#### **3.1. Systems Integration, Infrastructure, and Support**

- Support interoperability and secure data exchange between DHIS2, the PBF portal, eBuzima, accreditation systems, Virtual Care platforms, CRVS, EMR, and other relevant health information systems.
- Configure, maintain, and troubleshoot databases, ETL/ELT jobs, scripts, APIs, connectors, and other technical components that support HIC data flows.
- Work with HIC IT teams and relevant vendors to support system deployment, synchronization, user access management, routine backups, and performance monitoring.
- Develop interactive dashboards that track key maternal health process and outcome indicators while integrating automated alert triggers to support timely decision-making, continuous quality improvement, and rapid response by health teams.
- Monitor data transfer processes and investigate failures, delays, or inconsistencies in data exchange across platforms.
- Document system architecture, integration workflows, technical specifications, and standard operating procedures.
- Ensure adherence to data security, confidentiality, access control, and system governance requirements.

#### **3.2. Data Management, Analytics, and Visualization**

- Participate in the assessment and mapping of metadata for key Quality of Care, process, accreditation, and maternal health indicators.
- Support harmonization of indicator definitions, business rules, and metadata across integrated platforms.
- Design, clean, transform, and maintain structured datasets for routine monitoring, analytics, and reporting.
- Conduct descriptive, retrospective, and cross-sectional analyses to identify patterns, service delivery gaps, and system bottlenecks.
- Provide dashboards, visual analytics, and periodic technical reports for MoH/HIC and project partners.
- Contribute to advanced analytics and decision-support products, including trend analysis, risk stratification, and predictive modelling where relevant.

#### **3.3. Capacity Strengthening and Institutionalization**

- Train MoH/HIC staff and relevant district or facility teams on data extraction, dashboard use, data interpretation, and basic technical troubleshooting.

- Support adoption of standardized workflows for integrated data management, system use, and reporting.
- Collaborate with IT, clinical, monitoring and evaluation, and program teams to ensure technical solutions are practical, usable, and decision-relevant.
- Document lessons learned, technical processes, and sustainability measures for institutionalization within HIC.

#### **4. Monitoring and Reporting**

- Contribute technical and analytical inputs to quarterly and annual project reports.
- Maintain records of system integration progress, technical issues resolved, and improvements implemented.
- Document the use of dashboards and integrated data products in clinical supervision, management, and policy decisions.
- Participate in preparation of the final maternal health data review report, including technical findings, bottlenecks, and recommendations.
- Contribute to the final assessment of Virtual Care and related digital support interventions.

#### **5. Deliverables**

- Validated and harmonized metadata mapping for Quality of Care, process, accreditation, and maternal health indicators.
- Functional data pipelines, integration scripts, and documented system workflows supporting HIC and MoH platforms.
- Operational dashboards and visual analytics products for routine monitoring and decision-making.
- Periodic analytical briefs and technical progress updates.
- Technical documentation, user guides, and standard operating procedures for data integration and system support.
- Training materials and capacity-building sessions delivered to MoH/HIC staff and relevant stakeholders.
- Contribution to the final maternal health data review report and the impact assessment of Clinical Virtual Care.

#### **6. Qualifications and Experience**

- A Master's degree in Data science and a Bachelor's degree in Information Technology is required.
- Additional training, certification, or demonstrated practical experience in data science, data analytics, health informatics, computer science, or a related field is strongly preferred.
- At least 3 years of relevant experience in IT systems, data integration, database management, digital health platforms, or data analytics, preferably in the health sector.
- Proven experience designing, implementing, and maintaining ETL/ELT pipelines, APIs, databases, or other data exchange mechanisms.
- Strong practical skills in SQL and at least one scripting or programming language such as Python or R.

- Experience supporting or administering digital platforms, data warehouses, system integrations, or interoperable health information systems.
- Familiarity with server environments, data security principles, routine backup procedures, error monitoring, and technical troubleshooting.
- Experience with data visualization and reporting tools such as Power BI, Tableau, Apache Superset, or similar tools.
- Experience working with DHIS2, eBuzima, PBF systems, accreditation platforms, or other health information systems is an added advantage.
- Demonstrated ability to translate technical and analytical outputs into actionable operational and policy insights.
- Excellent communication, documentation, presentation, and capacity-building skills.

## **7. Duration and Location**

- Duration: 12 months renewable based on the project timeline.
- Location: Based at the Health Intelligence Centre (HIC) in Kigali, Rwanda, with periodic travel to selected district hospitals

## **8. Reporting and Supervision**

The Data Scientist (IT and Data Systems Integration) is based at NHIC and reports directly to the NHIC Director.

## **9. Expected Outcomes**

- Strengthened institutional capacity for digital systems integration and maternal health data analytics within HIC/MoH.
- Improved availability, reliability, and interoperability of data across key maternal health platforms.
- Increased use of integrated data, dashboards, and technical decision-support tools in supervision and policy-making.
- Improved responsiveness of facilities and program teams through timely technical support and data-driven insights.

## **How to apply:**

Interested candidates should scan all application documents and **merge them into one single, continuous document** and submit the following to [administration@ciichin.org](mailto:administration@ciichin.org) and reserve a copy to [info@ciichin.org](mailto:info@ciichin.org)

- A cover letter outlining relevant experience and motivation.
- A detailed CV with at least three professional references.
- Copies of professional certificates (where applicable)
- Copies of academic certificates.

Multiple separate files or a folder containing individual documents are discouraged.

**Subject line:** Application – Data Scientist

The application deadline is **Wednesday, 06<sup>th</sup> May 2026.**

Incomplete files or late applications will not be considered.



**Dr. Felix R. Kitema**  
**Managing Director**  
**CIIC-HIN**