

DENNIS KIBIYE

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PROFESSIONAL SUMMARY

Systems Architect and Health Informatics leader with 15 years of progressive experience in designing, deploying, and managing large-scale health data platforms across continental and regional public health organizations. Proven expertise in OpenHIE architecture, DHIS2 integration, FHIR-based interoperability, and cloud infrastructure management supporting 55 African Union Member States.

Currently serving as Senior Systems and Technology Officer at Africa CDC, providing technical leadership for the design and implementation of the Continental Data Repository (CDR) and multiple surveillance and analytics platforms. Demonstrated track record of leading cross-functional technical teams, supervising external vendors, and building the capacity of national technical counterparts in health information systems architecture and integration.

Core Technical Competencies:

- Systems Architecture & Engineering | OpenHIE, HL7/FHIR, IHE Profiles
- Health Information Exchange & Interoperability | DHIS2, EHR, HMIS Integration
- Cloud Infrastructure & DevOps | AWS, Azure, Docker, Kubernetes
- Database Architecture | MySQL, PostgreSQL, NoSQL, Data Warehousing, ETL Pipelines
- API Management & Microservices | RESTful APIs, Middleware Development
- Programming & Development | Python, PHP, Java, JavaScript, SQL
- Data Governance & Security | Encryption, Access Controls, AU Data Sovereignty Protocols
- Technical Leadership & Vendor Management | Supervision of 8-15 FTE Teams
- Capacity Building & Documentation | Training, SOPs, Technical Specifications

EDUCATION

Executive Master of Business Administration in Strategic Leadership

Quantic School of Business and Technology, Washington, DC | February 2025

Master of Science in Information Systems

Uganda Martyrs University, Kampala, Uganda | January 2018

Thesis: Bridging End-User Perspectives through Paper Prototyping for Improved HRIS Design

Bachelor of Science in Computer Science (First Class Honours)

Makerere University, Kampala, Uganda | January 2010

Project: Drug and Stock Management System

PROFESSIONAL CERTIFICATIONS

- Certified Information Systems Security Professional (CISSP)
- MGT514: Security Strategic Planning, Policy, and Leadership (SANS Institute, Las Vegas)
- NSE 4 FortiGate Security 7.0 (Fortinet, Dubai)
- DHIS2 Certified: Advanced Bootcamp, Fundamentals Academy, Information Use Academy, Level 1
- Certified Introduction to Geographic Information Systems (GIS)
- Cisco Certified Network Associate (CCNA), Dubai
- Certified Windows Server Administration
- Certified NGINX Fundamentals and High-Performance Servers
- Certified IT System Engineer – Cloud System Administration
- ITIL 4 Foundation, Specialist Create Deliver and Support, Strategist Direct Plan and Improve Certification
- Microsoft Dynamics NAV 2009R2 Certified
- SAP Certified Application Associate

PROFESSIONAL EXPERIENCE

Senior Systems and Technology Officer | Software Development Team Lead

Africa Centres for Disease Control and Prevention (Africa CDC), African Union

Addis Ababa, Ethiopia | November 2022 – Present

- Co-led the technical design and implementation of Africa CDC's Continental Data Repository (CDR), consolidating surveillance, laboratory, and demographic data from 55 Member States into a unified, secure, and interoperable platform
- Participated in technical working groups defining system architecture, hosting models, security controls, interoperability standards (OpenHIE, HL7/FHIR), and integration patterns with national and regional systems
- Established data governance frameworks, quality assurance protocols, and AU data sovereignty compliance measures, including encryption, access controls, and audit trail mechanisms
- Led development, customization, and integration of digital solutions, including DHIS2, Emergency Management System (EMS), Public Health Emergency Operations Centre (PHEOC) systems, and registry platforms, ensuring scalability and alignment with Africa CDC's digital health standards
- Designed and deployed the Africa CDC Public Vaccine Dashboard with real-time EMS integration, providing live tracking of vaccine distribution across Member States for AU leadership and partners

- Developed One-Page Access Portal consolidating 10 information systems (HRIS, asset tracker, staff locator, procurement tracker, legal documents tracker, training database, contact list) into a unified analytics interface
- Managed 6 production servers hosting 14 applications, including domain management, SSL certificate administration, subdomain configuration, and DNS redirection for continental surveillance platforms, achieving 99.5% uptime
- Led successful migration of Africa CDC's entire IT infrastructure from African Union tenant to standalone tenant – migrated 500 Outlook 365 accounts, virtual machines, SharePoint sites, Teams, and OneDrive with zero data loss or downtime
- Designed and implemented business continuity and disaster recovery protocols for Africa CDC's critical information systems, ensuring operational resilience and data protection
- Implemented infrastructure-as-code for automated deployment and configuration management of registry automation, approvals management, and performance tracking systems
- Provided specialized technical assistance to Ministries of Health in 30 Member States on registry modernization, PHEOC setup, surveillance information systems deployment, and interoperability standards
- Assessed, inspected, and installed Public Health Emergency Operations Centre (PHEOC) equipment in 30 Member States – conducted baseline assessments in 14 countries (Uganda, Burundi, Zimbabwe, Cape Verde, Malawi, Zambia, Gabon, Mauritania, Tanzania, Kenya, Comoros, Equatorial Guinea, Liberia, Rwanda), procured and installed equipment for 5 PHEOCs and 3 Regional Coordinating Centres
- Delivered 2 regional DHIS2 training workshops for 106 Africa CDC staff across multiple divisions, covering data entry, report generation, analysis, visualization, and data export to strengthen surveillance capacity
- Developed comprehensive training materials, toolkits, and standard operating procedures (SOPs) for all deployed information systems, ensuring sustainability and knowledge transfer to Member State counterparts
- Designed database models for surveillance platforms, implementing optimized indexing, query performance tuning, and scalable schema design
- Conducted statistical analyses on COVID-19 and Mpox surveillance data, generating forecasts for resource allocation and early warning systems
- Led and mentored technical teams of 8-15 FTE staff (Systems Administrators, Database Administrators, MIS Officers, Coordinators), conducting performance appraisals, career development planning, and succession planning for critical roles
- Produced detailed technical documentation including API documentation, system architecture diagrams, entity-relationship diagrams, data dictionaries, and implementation guides for Member States
- Documented all developed systems with comprehensive technical specifications, user guides, and SOPs, facilitating handover to technical teams and Member State counterparts
- Organized training and capacity-building sessions for 150 Africa CDC staff on digital platforms, information systems usage, and surveillance data management

Strategic Leadership (Acting Head of MIS Division, 2023 and 2024)

Divisional Establishment & Budget Management

- Established and led the MIS Division from concept to operational unit with 8 FTE staff (now grown to 15), securing divisional status through strategic advocacy and presentation of the MIS Profile (goals, structure, job descriptions, budget)
- Successfully lobbied for an increase in the MIS operational budget from \$6,000 USD to \$2 million USD per year
- Successfully lobbied for and secured funding for four MIS staff contracts, including their renewal, from donors and the AU Member State fund
- Led development of annual work plans and budget monitoring frameworks at the division level, tracking quarterly deliverables and financial execution against strategic priorities
- Mobilized donor funding for MIS Division expansion and system development initiatives, coordinating with partners to allocate resources toward strategic priorities and activities
- Coordinated with internal divisions, AU departments, donors, and external partners to harmonize digital initiatives and support the continental digital health agenda

Information Management Officer

Africa Centres for Disease Control and Prevention (Africa CDC), African Union

Addis Ababa, Ethiopia | June 2021 – October 2022

- Day-to-day management of the Africa CDC Public Health Emergency Operations Center (PHEOC) equipment, ensuring operational readiness for emergency response activities
- Supervised 2 Information Management Officers in the PHEOC, coordinating epidemiological data collection, operational reporting, and situational awareness products during emergency operations
- Planned and coordinated the digitization of the Africa CDC registry from a paper-based manual system to an online automated platform, reducing document processing time by 70% and improving retrieval accuracy
- Developed a modern online approvals submission system with automatic reference number assignment, enhancing records management and audit trail compliance
- Customized and deployed 10 in-house information systems tailored to Africa CDC workflows, including registry automation, approvals tracking, legal documents management, logistics databases, and vaccine dashboards
- Performed advanced analytics on public health data captured through multiple Africa CDC platforms (DHIS2, EMS, PHEOC systems), generating insights for strategic planning, emergency response, and policy development
- Mapped and visualized diverse data types (surveillance, laboratory, logistics, human resources) using GIS, Power BI, and custom dashboards to support situational awareness during emergencies
- Collected and collated epidemiological, operational, and contextual data, managing database content, structure, file locations, and backup systems for emergency response operations

- Developed and managed Knowledge Management Hub for Africa CDC, structuring content repository, establishing taxonomy, and enabling knowledge sharing across divisions and Member States
- Coordinated with technology vendors to ensure timely delivery of PHEOC equipment, software licenses, and system integrations meeting Africa CDC quality standards and project deadlines

MIS Unit Head / Management Information System Coordinator

GOAL International

Kampala, Uganda | February 2021 – June 2021

- Managed and supervised 4 MIS staff as part of the Senior Management Team, providing technical leadership for organizational monitoring, evaluation, research, and learning (MERL) functions
- Provided strategic advice on management information systems architecture, integration, and optimization for program delivery and donor reporting
- Developed risk management strategies and implementation roadmaps for digital transformation of GOAL's program information systems
- Developed, customized, and maintained online and offline digital systems (CommCare, MWater, Power BI, ArcGIS) for centralizing indicator results and monitoring project information in collaboration with the MERL team
- Led architectural design, specification, and configuration of IT infrastructure supporting field operations, ensuring scalability, security, and interoperability
- Implemented business continuity protocols, minimizing disruption to program operations, including automated backup systems and disaster recovery testing
- Identified training needs, designed and delivered training courses on MIS tools for program staff, building organizational capacity in CommCare, MWater, Power BI, and ArcGIS
- Enforced organizational policies and implemented procedures, ensuring data quality, integrity, and compliance with statutory requirements and donor regulations
- Led transformation projects automating internal approval systems and accountability tracking, improving efficiency and audit readiness

Database Informatics Manager

Infectious Disease Institute (IDI) – Uganda Health Supply System (UHSS)

Kampala, Uganda | February 2020 – February 2021

- Supervised a 10-member team as part of the Senior Management Team, overseeing iHRIS (Integrated Human Resource Information System) customization, deployment, and support for the Uganda Ministry of Health
- Managed iHRIS upgrades across national deployment, supporting data visualization, attendance tracking, and performance management to improve health service delivery

- Integrated iHRIS with DHIS2 for seamless data exchange between human resources and health management information systems, establishing interoperability protocols and data mapping standards
- Set up Automated Attendance Analysis Systems at the Ministry of Health headquarters, linking attendance data to performance management interventions and HR policy enforcement
- Provided regular system updates and technical assistance to the UHSS team, religious medical bureaus, health training institutions, and professional councils, ensuring data quality and system reliability
- Supported data analysis for HRH Annual Audit Reports, providing evidence-based recommendations to the Ministry of Health-on-health workforce planning and distribution
- Set up 3 data centres for UAHEB (Uganda Allied Health Examinations Board), UNMEB (Uganda Nurses and Midwives Examinations Board), and DIT, including server installation, network configuration, and security hardening

Ag. Head of Informatics / Informatics Developer/Manager

IntraHealth International

Kampala, Uganda | July 2016 – December 2019

- Supervised 8 staff (Informatics Officers, Informatics Assistants, IT Resource Persons), delivering national-scale HRIS deployment across 135 districts in Uganda
- Customized and trained 135 districts in Human Resource Information System (iHRIS), conducting on-site capacity building for approximately 2,400 district health management teams and human resource officers
- Performed computer programming, coding, database design, and systems architecture for multiple health information platforms supporting PEPFAR and Ministry of Health programs
- Developed innovative information systems integrated with national eHealth platforms: duty roster system, attendance tracking with mobile biometrics, and real-time synchronization with DHIS2 and iHRIS
- Maintained database access controls, user policies, and security protocols, ensuring appropriate permissions and audit compliance for sensitive health workforce data
- Created interactive maps and data visualizations using GIS and BI tools, analyzing health workforce distribution and service delivery coverage for evidence-based planning
- Built HRH Dashboard for 24 iHRIS instances in Uganda, visualizing health workforce data for Ministry of Health strategic planning and evidence-based policy development
- Developed an Attendance Tracking Mobile Application using biometrics (fingerprint recognition) – **Won Best Poster Award at the Global Health Digital Forum, Washington, DC (December 2018)**
- Designed Duty Roster System deployed in 135 districts to track health worker schedules and attendance, improving workforce accountability and supervision
- Created PEPFAR Absorption Tracking System monitoring placement of USG-supported health workers onto government payroll, enabling donor reporting and impact assessment

- Designed online registration system for Uganda Nurses and Midwives Examinations Board (UNMEB) and Uganda Allied Health Examinations Board (UAHEB), enabling digital student enrollment by health training institutions

Academic Contribution

- **Consultant Lecturer, Uganda Martyrs University** (January 2017 – December 2017): Taught courses on Health Informatics and Human Resource Information Systems to graduate and undergraduate students (MPH, BIT, Bachelor of Human Resource Management programs)

Informatics Officer / Informatics Developer

IntraHealth International

Kampala, Uganda | April 2015 – June 2016 / March 2013 – March 2015

- Customized and trained 112 districts (April 2015 – June 2016) and 15 districts in Northern Region (March 2013 – March 2015) in Human Resource Information System (iHRIS), designing new modules and features based on district-specific requirements
- Facilitated training on iHRIS, WISN (Workload Indicators of Staffing Need) methodology, e-shortlisting tool, and other eHealth initiatives for district service commissions and health managers
- Designed and implemented Performance Monitoring Information System (PMIS) for weekly organizational performance evaluation, Medicines and Stock Management System (MSIS) for monthly commodity tracking, and In-Service Training Database (ISTDB) for training records management
- Analyzed database models and requirements for new systems, conducting stakeholder consultations, and designing entity-relationship diagrams and data dictionaries
- Integrated information systems across platforms (HRIS, HMIS, logistics, training), ensuring data flow and interoperability
- Installed VSAT connectivity in 7 sites across Northern Uganda, establishing internet access for district health offices and enabling real-time data reporting
- Set up and configured the Ministry of Health Uganda Data Center, including server installation, network configuration, and security implementation

IT Assistant

Baylor Uganda

Kampala, Uganda | July 2011 – March 2013

- Customized and trained 15 districts in Western and Eastern regions on Human Resource Information System (iHRIS) for health workforce management
- Designed and implemented an IT Help Desk Tool for daily IT troubleshooting, ticket management, and resolution tracking, improving mean time to resolution
- Oversaw IT Service Desk, managing communication channels (phone, email, call management systems) to deliver first-line ICT support (password resets, account unlocking, general inquiries)

- Managed biometric attendance and access control systems, integrating with HR systems for automated time and attendance reporting
- Performed Windows update server and client update management, maintaining patch compliance across the organizational network
- Monitored the local area network (LAN) for threats and errors, and internet connectivity for security risks, implementing perimeter defenses

KEY ACCOMPLISHMENTS

- Co-led the design and implementation of Africa CDC's Continental Data Repository (CDR), consolidating surveillance, laboratory, and demographic data from 55 Member States
- Architected and deployed 14 mission-critical information systems serving the Africa CDC and Member States, including CDR components, registry automation, PHEOC systems, and analytics platforms
- Designed ETL pipelines integrating DHIS2, EMS, laboratory systems, and demographic databases into a unified CDR platform with real-time analytics capabilities
- Successfully migrated the entire Africa CDC IT infrastructure (500 Outlook 365 accounts, virtual machines, SharePoint sites, Teams, OneDrive) from the AU tenant to a standalone tenant with zero data loss or downtime
- Managed 6 production servers hosting 14 applications with 99.5% uptime and automated monitoring
- Implemented business continuity and disaster recovery protocols, ensuring 99.5% uptime for production systems
- Established domain management, SSL administration, and DNS infrastructure for continental health information platforms
- **10+ years supervisory/managerial experience:** Led teams at Africa CDC (8-15 FTE), IDI-UHSS (10 FTE), GOAL (4 FTE), IntraHealth (8 FTE), with 90% retention rate
- Established MIS Division from concept to operational status with approved structure, budget (\$2 million USD annually), and 8 FTE team (now grown to 15)
- Recruited, mentored, and led technical staff, conducting performance appraisals, career development planning, and succession planning for critical roles
- Assessed, installed, and commissioned PHEOCs in 30 Member States across Africa (baseline assessments in 14, full installations in 5)
- Delivered DHIS2 training to 106 Africa CDC staff, building organizational capacity in surveillance data management and analytics
- Trained 2,400 health workers and HR officers across 135 districts in Uganda on iHRIS, WISN, and eHealth systems (2011-2019)
- Provided technical assistance to 30 Member States on registry modernization, PHEOC setup, and surveillance information systems

- Developed Africa CDC IT and Information Security Policy (ISSP), establishing data governance, security standards, and privacy frameworks for continental surveillance systems
- Established data governance frameworks, quality assurance protocols, and interoperability standards (HL7/FHIR) for the CDR
- Designed data quality frameworks and standard operating procedures for 10 information systems deployed at Africa CDC
- Developed Africa CDC Public Vaccine Dashboard with real-time EMS integration for continental vaccine tracking
- Created One-Page Access Portal consolidating 10 systems into a unified analytics interface for decision support
- Built HRH Dashboard for 24 iHRIS instances, visualizing health workforce data for national strategic planning
- Designed attendance tracking and biometric systems – **Won Best Poster Award at Global Health Digital Forum, Washington DC (2018)**
- Automated Approvals Management system, eliminating paper-based processes and reducing approval cycle time by 60%

TECHNICAL SKILLS & COMPETENCIES

- OpenHIE Architecture, HL7 FHIR, IHE Profiles, ICD-11, SNOMED CT
- Health Information Exchange (HIE), Interoperability Standards
- Data Warehousing, Federated Data Systems, ETL Pipeline Design
- Microservices Architecture, API Management, Middleware Development
- Security-by-Design Principles, Encryption, Access Controls
- **DHIS2:** Advanced Certified (Bootcamp, Fundamentals, Information Use, Level 1)
- iHRIS: Expert-level customization, deployment, and integration
- PHEOC Systems, Emergency Management Systems (EMS)
- Electronic Health Records (EHR), Laboratory Information Systems
- Surveillance Data Integration, Civil Registration Systems
- **Relational Databases:** MySQL (Expert), PostgreSQL, Microsoft SQL Server
- **NoSQL Databases:** Document stores, key-value stores
- Database design and optimization, indexing, query performance tuning
- Data modeling, entity-relationship diagrams, data dictionaries
- ETL pipelines, data integration, backup and recovery strategies
- **Cloud Platforms:** AWS, Azure (Certified Cloud System Administrator)

- **Containerization:** Docker, Kubernetes
- **Virtualization:** VMware, Hyper-V
- Infrastructure-as-Code, automated deployment, configuration management
- Network administration, DNS/DHCP, Active Directory
- **Languages:** Python, PHP, Java, JavaScript, SQL, R, HTML/CSS, Bash scripting
- **Frameworks:** Laravel, Django, RESTful APIs
- API development and integration, mobile application development
- Web application development, database-driven applications
- Power BI, ArcGIS, Tableau, QGIS
- Data analysis and modeling, predictive analytics
- Dashboard development, reporting and KPI tracking
- GIS mapping, geospatial analysis
- Statistical analysis (R, STATA, SAS)
- **Certified Information Systems Security Professional (CISSP)**
- Security policy development, vulnerability assessment, incident response
- Firewall management (FortiGate NSE 4), intrusion detection
- Compliance auditing, data privacy, AU data sovereignty protocols
- Strategic planning, budget management, team leadership
- Stakeholder engagement, change management, vendor management
- Risk management, donor reporting, PMP methodologies
- ITIL 4 Foundation, Specialist, Strategist certifications

PUBLICATIONS & CONFERENCE PRESENTATIONS

1. **Best Poster Award Winner** – "Duty Roster and Attendance Tracking Mobile App," Global Health Digital Forum, Washington, DC, December 2018
2. "Improving Healthcare in Uganda by a Touch of a Finger," Abstract presentation, December 2019
3. "Attendance Tracking Innovation in Uganda," Video presentation ([YouTube](#))

Academic Research

1. **Master's Thesis:** "Bridging End-User Perspectives through Paper Prototyping Technique to Improve Design and Implementation of Human Resource Information Systems," Uganda Martyrs University, March 2018
2. **Bachelor's Project:** "Drug and Stock Management System," Makerere University, May 2010

INTERNATIONAL FIELD EXPERIENCE

Public Health Emergency Operations Centre (PHEOC) Assessments

- Conducted baseline assessments in **14 Member States**: Uganda, Burundi, Zimbabwe, Cape Verde, Malawi, Zambia, Gabon, Mauritania, Tanzania, Kenya, Comoros, Equatorial Guinea, Liberia, Rwanda
- Led installation and setup for **5 PHEOCs and 3 Regional Coordinating Centres**: Uganda, Burundi, Cape Verde, Rwanda, RCC-Zambia, RCC-Gabon, RCC-Kenya

International Conferences & Workshops

- December 2018: Global Health Digital Forum, Washington DC, USA – Poster presentation (Best Poster Award)
- June 2019: East Africa Technical Barraza and Digital Health Team Workshop, Arusha, Tanzania
- June 2018: East Africa Technical Barraza and Digital Health Team Workshop, Naivasha, Kenya

LANGUAGES

- **English**: Fluent
- **French**: Intermediate

PROFESSIONAL MEMBERSHIPS

- DHIS2 Community of Practice
- Health Informatics Professionals Network

REFERENCES

Dr. Wessam Mankoula

EOC Manager, Africa CDC, African Union

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Mr. Simon Kamya

HRH Team Lead, Palladium

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Dr. Justin Maeda

Ag. Head, PRA Division, Africa CDC, African Union

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