DRC

Terms of Reference (TOR)

for

Referral Management System – Software Development Consultancy

1. Who is the Danish Refugee Council?

Founded in 1956, the Danish Refugee Council (DRC) is a leading international non-governmental organisation (INGO) and one of the few with a specific expertise in forced displacement. Active in 40 countries with 9,000 employees and supported by 7,500 volunteers, DRC protects, advocates, and builds sustainable futures for refugees and other displacement affected people and communities. DRC works during displacement at all stages: In the acute crisis, in displacement, when settling and integrating in a new place, or upon return. DRC provides protection and life-saving humanitarian assistance; supports displaced persons in becoming self-reliant and included into hosting societies; and works with civil society and responsible authorities to promote protection of rights and peaceful coexistence.

DRC has been operational in Somalia since 1998 and is currently among the largest international (INGOs) in the country, with country-wide programmes implemented through six main offices and nine sub-offices in South Central Somalia, Somaliland, Puntland and Galmudug regions. Somalia is vulnerable to extreme weather patterns and remains in a protection crisis where armed conflict, insecurity and natural disasters trigger the displacement of thousands of people.

2. Purpose of the consultancy

The Danish Refugee Council in Somalia seeks a consultant to develop a robust **Referral Management System (RMS)** to enhance coordination, accountability, and efficiency in service delivery across multiple sectors, particularly health, nutrition, and protection. The RMS will be a critical component of DRC's larger information management system, **RESPOND**, and will be tailored to meet the specific needs of humanitarian operations in Somalia, including two-way referral pathways and service mapping.

3. Background

DRC Somalia plays a key role in various coordination bodies aimed at improving the effectiveness of the humanitarian response through joint data collection, analysis, planning, and response. These include, but are not limited to, the CCCM Cluster, Somalia Cash Consortium, WASH Cluster, and Protection Monitoring. DRC is committed to strengthening inter-agency collaboration and ensuring that data-driven approaches enhance the delivery of humanitarian assistance across Somalia.

As part of its humanitarian response, DRC Somalia implements an Integrated First Line Response (IFLR) package, which provides multi-sector emergency support to newly displaced populations arriving at DRC-managed IDP sites. The IFLR activities include, but are not limited to, household registration with malnutrition screening for children, distribution of non-food items (NFIs), multi-purpose cash assistance, two-way referrals, WASH activities at both site and household levels, and Individual Protection Assistance (IPA). Referrals are a critical modality for DRC, especially for malnourished children identified during screening, as well as persons of concern identified by DRC's protection, CCCM, and emergency teams. Depending on the nature of the case, referrals are made either internally to DRC's teams or externally to other organizations.

In some instances, DRC staff refer cases to mobile teams operated by other organizations within DRC-managed IDP sites. However, the current referral process is largely manual, relying on paper forms or Excel spreadsheets shared via email. This manual process is inefficient and makes it difficult to track referrals and ensure timely responses. DRC Somalia has been working with an external consultant to develop an internal information management system called RESPOND. This system is designed to improve the management of DRC's program data and facilitate the collection, tracking, and reporting of critical information.

To further enhance the coordination and effectiveness of service delivery, DRC is now developing a Referral Management System (RMS), which must be integrated into RESPOND. The RMS will streamline referral pathways—whether internal or external—ensuring real-time tracking of cases, improving coordination, and enhancing accountability. The system will support two-way referral processes, enabling DRC teams to manage cases more efficiently, whether they are referred internally between DRC sectors or externally to other humanitarian actors. The RMS will also feature offline capabilities, allowing referrals to be processed even in areas with limited or no internet connectivity, and a service mapping tool to provide up-to-date information on available services and focal points at each site.

To ensure the system meets the needs of the humanitarian sector, DRC will collaborate with key organizations, to pilot the RMS. These organizations will test the system during the pilot phase, allowing for refinement and ensuring it is fit for purpose before being scaled up for broader use. This collaboration will also ensure that the system aligns with the existing workflows of various actors in the humanitarian response.

4. Objective of the consultancy

The Danish Refugee Council (DRC) seeks a **consultancy firm** to develop a robust **Referral Management System (RMS)** to enhance coordination, accountability, and efficiency in service delivery across multiple sectors, particularly health, nutrition, and protection. The RMS will be a critical component of DRC's larger information management system, **RESPOND**, and will be tailored to meet the specific needs of humanitarian operations in Somalia, including two-way referral pathways and service mapping.

The RMS will:

- ➢ **Two-Way Referral Pathways**: Enable organizations to refer cases both internally and externally, facilitating real-time tracking of referrals from initial identification to case closure. This will ensure smooth case management and follow-up across multiple actors and sectors.

- ➢ **Offline Capability**: Operate in environments with limited or no internet access by allowing referrals to be created, updated, and tracked offline without requiring heavy hardware setups. The system will sync once the internet connection is restored, ensuring uninterrupted operations even in remote or underserved areas.

- ➢ **Service Mapping**: The RMS will include a comprehensive service mapping feature, initially populated with data from DRC and partner organizations. This feature will allow users to identify available services and focal points at various sites. The service mapping will be regularly updated through two-way communication between RMS users and Area-Based Coordination (ABC) structures, ensuring up-to-date information is always available for effective service delivery.

- ➢ **Interoperability with DRC's RESPOND System**: The RMS will be fully integrated with DRC's existing **RESPOND** information management system, allowing for seamless data sharing, case tracking, and

reporting. This integration will ensure that referral data feeds into DRC's broader data collection and analysis efforts, contributing to the overall effectiveness of humanitarian response.

➢ **Interoperability with UN, Cluster, and Consortia IM Systems**: The RMS will be designed for interoperability with key information management systems used by UN agencies, humanitarian clusters, and consortia, including IOM's **BRAVE**, WFP's **SCOPE**, SCC's **Red Rose**, and feedback platforms like **Zite Manager**. This ensures that referral data can be shared and integrated smoothly across different organizations and platforms, enhancing coordination and reducing duplication of efforts. The RMS will adhere to the data-sharing protocols and standards of these systems, ensuring compliance and alignment with inter-agency data protection policies and information flows.

The consultancy firm will be required to deliver the source code that contains the below features:

- **System Architecture Setup with Edge Computing and Desktop Offline Capabilities**: Develop a hybrid cloud-edge architecture that supports real-time data processing in low-internet environments, reducing latency and improving system performance. Additionally, create a desktop application to enable users to work offline, capturing and processing referral data locally. The desktop app will sync with the central system once connectivity is restored, ensuring continuous functionality in remote areas with unstable internet access.
- **Server Configuration and Setup**: Establish a secure, scalable server infrastructure capable of handling high data traffic, ensuring redundancy, data backups, and security for sensitive referrals.
- **Referral Pathways Development with Multi-Mailbox Design**: Develop the core two-way internal and external referral pathways that enable real-time tracking and management of referrals. Implement a multi-mailbox design to ensure that referrals are routed efficiently to the appropriate sectors or organizations, allowing each mailbox to handle different types of referrals while maintaining clear visibility and control over the referral status.
- **Secure External Access for Non-RMS Organizations, Including Offline Referral Transmission**:
    - Develop secure referral access for external partners (non-RMS organizations). External partners will be able to receive and manage referrals via secure email links.
    - The system will enable users to send encrypted offline referral files for non-RMS users.
    - The system will generate a secure link for external partners to submit follow-up actions, updates, or referral responses securely once they reconnect, ensuring data integrity and transparency.
    - Preferably offline files should be synced to the RMS application.
- **Desktop Version for Offline Data Processing**: Deliver a desktop version of RMS that allows users to manage and process referrals offline. Data can be captured, stored locally, and synced once an internet connection is available, offering flexibility in areas with unstable connectivity.
- **AI-Driven Service Mapping**: Build a dynamic AI-powered service mapping tool that updates service availability in real-time and provides recommendations on where services are needed based on referral patterns and demand.
- **Blockchain-Enhanced Offline Data Submission**: Develop the offline referral submission system over Bluetooth, ensuring data security and creating blockchain-secured records of offline transactions between mobile centres.
- **Multi-Layered Data Encryption for Sensitive Referrals**: Finalize multi-layered encryption protocols for sensitive referral cases, ensuring comprehensive protection for data in transit and storage.
- **System Performance and Security Testing**: Complete final testing for system performance, ensuring optimal speed, scalability, and security across all modules.
- **Mobile Application Development**: Deliver a mobile application that functions similarly to Kobo Toolbox and Open Data Kit (ODK), enabling offline processing of data collection. The app will allow field staff to collect referral information and update records even in areas with limited internet connectivity, ensuring seamless data capture and synchronization once online.
- **Link Mobile App with Fingerprint Scanner**: Integrate the mobile application with a fingerprint scanner for secure user authentication and to enhance data integrity during field operations. This feature will ensure that only authorized personnel can access and input data, improving security and accountability.
- **Thumbprint Reader for NFIs and MPCA Distribution Lists**: Incorporate a thumbprint reader feature into the mobile app to manage distribution lists for Non-Food Items (NFIs) and Multi-Purpose Cash

Assistance (MPCA). This biometric verification will ensure that beneficiaries receive the correct assistance and prevent fraud, providing an additional layer of security during distributions.

- **MEAL System Notification Integration**: Link referrals to the MEAL system by automating notifications that trigger feedback collection and monitoring tasks when referrals are completed, closing the feedback loop.
- **API Integration for Service Mapping**: Develop APIs that integrate the service mapping tool with external systems (BRAVE, SCOPE, Red Rose), ensuring access to updated service availability across platforms.
- **Multi-Layered Encryption for Multi-Referral Cases**: Finalize the encryption protocols for multi-referral cases, ensuring that each organization in the referral chain can only access the data relevant to them, maintaining confidentiality.
- **Blockchain-Based Audit Trails**: Implement blockchain technology for immutable audit trails, ensuring secure and tamper-proof referral tracking.
- **Advanced Data Encryption Setup**: Implement multi-layered encryption protocols, particularly for sensitive referrals involving protection and health data, to secure both in-transit and at-rest data.
- **Preliminary API Framework and External Access Setup**: Lay the groundwork for API integration with external systems and build the secure external access feature for organizations not using RMS to interact securely via encrypted email links.
- **Real-Time NLP Language Translation**: Develop a natural language processing (NLP) system for real-time translation of referral data in Somali, Arabic, and English, ensuring seamless collaboration across multilingual teams.
- **AI-Powered Anomaly Detection and Predictive Reporting**: Integrate AI models to monitor referral patterns in real-time, detecting anomalies (such as delays or discrepancies) and generating predictive reports. These reports will provide insights on referral performance, service gaps, and beneficiary satisfaction. By flagging unusual activities and offering proactive recommendations, the system helps decision-makers adjust strategies and maintain data integrity.
- **Neural Networks and Deep Learning for Demand Forecasting and Resource Optimization**: Deploy neural networks and deep learning algorithms to forecast future service needs and optimize resource allocation. These models will analyse historical and real-time referral data to ensure that resources are distributed efficiently, preventing service bottlenecks or shortages. This dual functionality helps stakeholders anticipate demand and manage resources more effectively across sectors.
- **Big Data Analysis, Triangulation, and Decision Support System (DSS)**: Implement big data analytics and triangulate information from various sources, such as DRC's SPMS, Access and Safety Incidents, and other humanitarian datasets. AI models will cross-analyse this data to provide deep insights into service delivery trends, risks, and access constraints. These insights will power the AI-Powered Decision Support System (DSS), which will offer real-time recommendations for managing referrals, reallocating resources, and addressing service bottlenecks based on the analysis of data from multiple sources.
- **Comprehensive System Handover and Onboarding**: Deliver the final, fully tested RMS to DRC, including all documentation, training materials, and user guides
- **Post-Launch Support Plan**: Develop a post-launch maintenance contract for ongoing technical support, system updates, and security monitoring. This plan will ensure long-term stability and performance of the RMS, providing DRC with the necessary resources to address any issues and implement updates as needed.

5. Scope of work and Methodology

The Consultant will be required to prepare a detailed methodology and work plan indicating how the objectives of the project will be achieved, and the support required from DRC.

6. Deliverables

The Consultant will submit the following deliverables as mentioned below:

Phase	Expected deliverables	Indicative description tasks	Maximum expected timeframe

Phase 1: Infrastructure Setup and Core System Development	1. System Architecture Setup with Edge Computing and Desktop Offline Capabilities
	2. Server Configuration and Setup
	3. Referral Pathways Development with Multi-Mailbox Design
	4. Secure External Access for Non-RMS Organizations, Including Offline Referral Transmission
		1. System Architecture Setup with Edge Computing and Desktop Offline Capabilities: Develop a hybrid cloud-edge architecture that supports real-time data processing in low-internet environments, reducing latency and improving system performance. Additionally, create a desktop application to enable users to work offline, capturing and processing referral data locally. The desktop app will sync with the central system once connectivity is restored, ensuring continuous functionality in remote areas with unstable internet access.
		2. **Server Configuration and Setup**: Establish a secure, scalable server infrastructure capable of handling high data traffic, ensuring redundancy, data backups, and security for sensitive referrals.
		3. Referral Pathways Development with Multi-Mailbox Design: Develop the core two-way internal and external referral pathways that enable real-time tracking and management of referrals. Implement a multi-mailbox design to ensure that referrals are routed efficiently to the appropriate sectors or organizations, allowing each mailbox to handle different types of referrals while maintaining clear visibility and control over the referral status.
		4. Secure External Access for Non-RMS Organizations, Including Offline Referral Transmission:
		   o Develop secure referral access for external partners (non-RMS organizations). External partners will be able to receive and manage referrals via secure email links.
		   o The system will enable users to send encrypted offline referral files for non-RMS users.
		   o The system will generate a secure link for external partners to submit follow-up actions, updates, or referral responses securely once they reconnect, ensuring data integrity and transparency.
		   o Preferably offline files should be synced to the RMS application.
			1 month

Phase 2: Security, Offline Processing, and Service Mapping	1. Desktop Version for Offline Data Processing 2. AI-Driven Service Mapping 3. Blockchain-Enhanced Offline Data Submission 4. Multi-Layered Data Encryption for Sensitive Referrals	1. **Desktop Version for Offline Data Processing**: Deliver a desktop version of RMS that allows users to manage and process referrals offline. Data can be captured, stored locally, and synced once an internet connection is available, offering flexibility in areas with unstable connectivity. 2. **AI-Driven Service Mapping**: Build a dynamic AI-powered service mapping tool that updates service availability in real-time and provides recommendations on where services are needed based on referral patterns and demand.	**1 month**

Phase	Expected deliverables	Indicative description tasks	Maximum expected timeframe
	5. System Performance and Security Testing	3. **Blockchain-Enhanced Offline Data Submission**: Develop the offline referral submission system over Bluetooth, ensuring data security and creating blockchain-secured records of offline transactions between mobile centres. 4. **Multi-Layered Data Encryption for Sensitive Referrals**: Finalize multi-layered encryption protocols for sensitive referral cases, ensuring comprehensive protection for data in transit and storage. 5. **System Performance and Security Testing**: Complete final testing for system performance, ensuring optimal speed, scalability, and security across all modules.	
Phase 3: Mobile Application Development and Integration with MEAL and Biometric Systems	1. Mobile Application Development 2. Link Mobile App with Fingerprint Scanner 3. Thumbprint Reader for NFIs and MPCA Distribution Lists 4. MEAL System Notification Integration 5. API Integration for Service Mapping 6. Multi-Layered Encryption for Multi-Referral Cases	1. **Mobile Application Development**: Deliver a mobile application that functions similarly to Kobo Toolbox and Open Data Kit (ODK), enabling offline processing of data collection. The app will allow field staff to collect referral information and update records even in areas with limited internet connectivity, ensuring seamless data capture and synchronization once online. 2. **Link Mobile App with Fingerprint Scanner**: Integrate the mobile application with a fingerprint scanner for secure user authentication and to enhance data integrity during field operations. This feature will ensure that only authorized personnel can access and input data, improving security and accountability. 3. **Thumbprint Reader for NFIs and MPCA Distribution Lists**: Incorporate a thumbprint reader feature into the mobile app to manage distribution lists for Non-Food Items (NFIs) and Multi-Purpose Cash Assistance (MPCA). This biometric verification will ensure that beneficiaries receive the correct assistance and prevent fraud, providing an additional layer of security during distributions. 4. **MEAL System Notification Integration**: Link referrals to the MEAL system by automating notifications that trigger feedback collection and monitoring tasks when referrals are completed, closing the feedback loop. 5. **API Integration for Service Mapping**: Develop APIs that integrate the service mapping tool with external systems (BRAVE, SCOPE, Red Rose), ensuring access to updated service availability across platforms. 6. **Multi-Layered Encryption for Multi-Referral Cases**: Finalize the encryption protocols for multi-referral cases, ensuring that each organization in the referral chain can only access the data relevant to them, maintaining confidentiality.	**1 month**
Phase 4: Blockchain Security, API	1. Blockchain-Based Audit Trails	1. **Blockchain-Based Audit Trails**: Implement blockchain technology for immutable audit	**1 month**

Phase	Expected deliverables	Indicative description tasks	Maximum expected timeframe
Setup, and Language Translation	2. Advanced Data Encryption Setup 3. Preliminary API Framework and External Access Setup 4. Real-Time NLP Language Translation	trails, ensuring secure and tamper-proof referral tracking. 2. **Advanced Data Encryption Setup**: Implement multi-layered encryption protocols, particularly for sensitive referrals involving protection and health data, to secure both in-transit and at-rest data. 3. **Preliminary API Framework and External Access Setup**: Lay the groundwork for API integration with external systems and build the secure external access feature for organizations not using RMS to interact securely via encrypted email links. 4. **Real-Time NLP Language Translation**: Develop a natural language processing (NLP) system for real-time translation of referral data in Somali, Arabic, and English, ensuring seamless collaboration across multilingual teams.	
Phase 5: AI-Driven Insights, Data Analysis, and Post-Launch Support	1. AI-Powered Anomaly Detection and Predictive Reporting 2. Neural Networks and Deep Learning for Demand Forecasting and Resource Optimization 3. Big Data Analysis, Triangulation, and Decision Support System (DSS) 4. Comprehensive System Handover and Onboarding 5. Post-Launch Support Plan	1. **AI-Powered Anomaly Detection and Predictive Reporting**: Integrate AI models to monitor referral patterns in real-time, detecting anomalies (such as delays or discrepancies) and generating predictive reports. These reports will provide insights on referral performance, service gaps, and beneficiary satisfaction. By flagging unusual activities and offering proactive recommendations, the system helps decision-makers adjust strategies and maintain data integrity. 2. **Neural Networks and Deep Learning for Demand Forecasting and Resource Optimization**: Deploy neural networks and deep learning algorithms to forecast future service needs and optimize resource allocation. These models will analyse historical and real-time referral data to ensure that resources are distributed efficiently, preventing service bottlenecks or shortages. This dual functionality helps stakeholders anticipate demand and manage resources more effectively across sectors. 3. **Big Data Analysis, Triangulation, and Decision Support System (DSS)**: Implement big data analytics and triangulate information from various sources, such as DRC's SPMS, Access and Safety Incidents, and other humanitarian datasets. AI models will cross-analyse this data to provide deep insights into service delivery trends, risks, and access constraints. These insights will power the AI-Powered Decision Support System (DSS), which will offer real-time recommendations for managing referrals, reallocating resources, and addressing service bottlenecks based on the analysis of data from multiple sources. 4. **Comprehensive System Handover and Onboarding**: Deliver the final, fully tested RMS	**2 months**

Phase	Expected deliverables	Indicative description tasks	Maximum expected timeframe
		to DRC, including all documentation, training materials, and user guides. 5. **Post-Launch Support Plan**: Develop a post-launch maintenance contract for ongoing technical support, system updates, and security monitoring. This plan will ensure long-term stability and performance of the RMS, providing DRC with the necessary resources to address any issues and implement updates as needed.	

The information management system should be fully owned and/or managed by DRC by having the source code of the Information Management system framework.

The Consultant will provide the documentation **on DRC's shared OneDrive.**

7. Duration, timeline, and payment

The total expected duration to complete the assignment will be no more than 6 months.

The consultant shall be prepared to complete the assignment no later than *September 2025*.

8. Proposed Composition of Team

- Project Manager
- Developers
- Technical support focal point
- Cyber security specialist

9. Eligibility, qualification, and experience required

Essential:
- Minimum 10 years of experience in developing information/data management systems in a humanitarian and/or development context, including online platforms, preferably using ASP.Net Core
- Extensive experience in PostgreSQL or MS SQL database engines
- Extensive experience in JSON
- Extensive experience in JavaScript
- Extensive experience in server configurations (on-premises and cloud)
- Strong ability to organize work, meet deadlines, prioritize tasks, and maintain attention to detail
- Excellent interpersonal and problem-solving skills, creativity, and flexibility
- High computer literacy

Desirable:
- Good experience in Linux server management and configuration, mainly Ubuntu
- Azure hosting certificates
- Data protection and security experience (GDPR)
- Knowledge of Activity Info, CPIMS+, and GBVIMS+ platforms
- Experience in User Interface/User Experience (UI/UX)
- Experience in GIS, mainly Leaflet
- Experience in IVR API
- Experience in Microsoft Office 365 SharePoint
- INGO experience is preferred

10. Technical supervision

The selected consultant will work under the supervision of:

- Information Management Manager, Omar AlHussein, Email: omar.alhussein@drc.ngo

11.   Location and support

The consultant will be executing his/her tasks remote.

The Consultant will provide her/his own computer and mobile telephone

12.   Travel

There is no travel required

13.   Submission process

Refer to the RFP document name of the document.

14.   Evaluation of bids

Refer to the RFP document name of the document.