

Questions and answers regarding the development of a national immunization registry for Malawi (RFP #2023-042)

1. **What were the key outputs of the Immunization Digital Ecosystem Mapping workshop conducted in July 2023, as referenced to on page 8 of the request for proposal (RFP)?**
 - a. During the Ecosystem Mapping workshop, the Digital Innovation and Pandemic Control project stakeholders identified systems within the digital health ecosystem which the Hospital Wide Information System (HWIS) may need to interoperate with, either as part of this project or in a later phase. The priority interoperability use cases will be confirmed as part of the scope of work (SOW). The systems include:
 - i. National ID
 1. Usage of National ID number–minimum, must interface.
 2. Usage of the chip to capture data–advanced, later phase, not required.
 - ii. Demographics Data Exchange (DDE)–Tech stack: Vue.js, Ruby, MySQL
 1. Must interface.
 - iii. Master Health Facility Registry (MHFR)–Tech stack: React on Redux, MySQL
 1. Must interface (can use an Excel workbook for export and import).
 - iv. OpenLMIS
 1. Must interface.
 - v. Health Worker Registry–open source internet-based Human Resource Information System (iHRIS)
 1. Must interface (can use an Excel workbook for export and import).
 - vi. Product Catalogue Management Tool (PCMT)
 1. Advanced, later phase, not required.
 - vii. Integrated Community Health Information System (iCHIS)
 1. Must interface.
2. **Following the award of the successful applicant on 29th September 2023 and the envisaged negotiations, when is the estimated start date for this work?**
 - a. The estimated start date for this work is in late October or early November 2023.
3. **Which programming languages and databases is the hospital wide information system (HWIS) development team familiar with, in addition to the technology stack described on page 6 of the RFP?**
 - a. The language of choice was provided in the RFP, but teams can use other languages, such as flask (python). The HWIS team is flexible in using cutting edge technologies that work for both parties.
4. **Page 14 - Evaluation criteria No.2. Are there specific roles and qualifications that are required for technical evaluation e.g., for Team Leader/Lead Developer/ Quality Assurance (QA) Engineer etc.?**
 - a. Regarding Criteria 2 **Organizational and team experience in the following areas, to be evaluated by past performance information references:** The applicant should provide evidence of past technical experience working on projects that demonstrated depth of knowledge related to three key areas: 1) how immunization services are

provided, 2) how to work with open source technologies, and 3) the use of open standards to enable data exchange between systems.

- b. For section **8.1 Supplier qualifications**: The applicant should provide the curriculum vitae (CVs) of key technical personnel such as the overall technical development lead, overall quality assurance lead and the overall analyst lead, recognizing that these roles may have different titles (e.g. Technical Architect/Team Lead, Lead Developer, QA Lead, Business Analyst, System Analyst, etc.). The goal is to showcase the experience and skillsets of the core technical team members.

5. What is the budget ceiling for this work?

- a. The estimated budget for this work is between US\$150,000 and US\$200,000.

6. What is the expected level of detail for the sustainability plan activities?

- a. The sustainability plan should include a broad outline of major activities for how you propose engaging with stakeholders to develop a sustainability plan. This need not be detailed but should demonstrate an understanding of the key issues to be addressed, highlighting any past experiences.

7. Phased approach, is there likely to be a phase II to explore institutionalization?

- a. Phase II is not yet planned.

8. Is the NICRA accepted for overhead costs?

- a. Yes, NICRA is accepted. However, there is a cap of 12% for indirect costs.

9. Will this be a cost reimbursable or a fixed-price contract?

- a. This will likely be fixed-price, though PATH reserves the right to determine the payment mechanism during the contracting process.

10. Is there existing technical documentation of the Hospital Wide Information System (HWIS) that can be shared?

- a. Yes, detailed documentation will be shared with the successful applicant as the documentation is for internal use only.

11. What is the current capacity in the Ministry of Health (MOH) and within other related public sector agencies for ongoing IT-related activities and support? Are there any current plans for expanded human resource capacity and support?

- a. The MOH, through the Digital Health Department (DHD), has the capacity to maintain and sustain the software.

12. Have any of the 2020-2025 National Digital Strategy objectives around IT human resources allocation been achieved to date?

- a. DHD has approval to recruit 26 government personnel dedicated to supporting various implementations, including the immunization registry.

- 13. Have there been investments in the last 12 months within the information communication technology (ICT) division and expansion of expertise to manage such investment?**
- a. Yes. In addition to the answer to question 12 above, there is a strong government commitment through the Quality Management Directorate (QMD) which assigned a deputy director for the DHD.
- 14. How scaled and extensive is the electronic medical record (EMR) investment across Malawi?**
- a. The EMR is scaled to about 700 (70%) facilities and is growing. The EMR is scaled across multiple health programs including HIV and outpatient department (OPD).
- 15. Do we have geolocations as to which districts are using EMRs versus electronic health records (EHR) and is the plan to move fully to EHRs as opposed to EMRs?**
- a. Please refer to the [National Digital Health Strategy 2020-2025](#).
- 16. What is the status of MOH moving to cloud base server infrastructure? Are there any immediate plans?**
- a. The MOH DHD has plans for hybrid hosting of aggregate data (i.e., non-personal identifiable information [PII]); aggregate data can be hosted on the cloud only in some cases. However, PII will be hosted locally (mainly in local data centers).
- 17. Many of the digital health investments in Malawi have data hosted on partner servers. Does the MOH have capacity to locally host the electronic immunization registry (EIR) investment?**
- a. Yes. The MOH has the capacity to locally host the EIR. Most of the partner-supported implementations are hosted within the capacity of the ministry.
- 18. What are the existing target systems which would require integration with the immunization platform and what digital health standards do they support?**
- a. Please refer to the answer to question 1.
- 19. Please provide copies or links to any current state digital health landscape reports/assessments e.g., the "digital ecosystem mapping workshop conducted in July 2023".**
- a. Digital Square will share the link once the current report is finalized. Digital Square added report highlights in the RFP and in the answer to question 1 above.
- 20. Given that the HWIS is based on OpenMRS, does the use of the word "within" in the following statements: "developing an initial version of a digital immunization registry that demonstrates the potential to be implemented within the country's Hospital Wide Information System (HWIS)" found on page 6 in the RFP, and in "The primary output is a national immunization registry developed as a module within the HWIS" found on page 9 of the RFP, mean that the immunization registry solution must be developed as an OpenMRS module or will proposing the integration of an existing, proven solution with OpenMRS be considered acceptable?**

- a. HWIS is not being developed as an OpenMRS module (i.e., a fully-fledged open EMR). Rather, the HWIS has adopted an OpenMRS data model. The MOH DHD plans to use in-house developers to develop business logic and front end. The winning applicant can partner with Digital Square and the MOH DHD for further discussion. This development work will be guided by DHD; if a proven solution (e.g., OpenMRS Module) following the documented use cases is identified, that will need to be explored and approved by DHD.

21. What are the preferred open source languages with regards to this statement: "Microservices: To be developed on preferred open source languages" listed under section "Guidance on country engagement" found on page 7.

- a. Please refer to the answer to question 3 above.

22. On page 11, the RFP states "Applicant(s)/consortium(s) should demonstrate that they have local presence and have resources based in Malawi". Can a local partner be in an adjacent country and have resources based in Malawi?

- a. The applicant or one of the consortium members must be a registered business in Malawi with a presence in Malawi.

23. Please confirm our understanding that a pilot deployment is not part of the scope of work for this RFP.

- a. The sub will deliver an EIR as part of the scope of work. The sub will also test the EIR, which needs to have the capabilities to scale to 900+ static sites across Malawi. However, the national scale-up will not take place during this project timeline. During this project timeline, Digital Square and the MOH plan to pilot the EIR in 24 facilities in two districts, Mchinji and Ntcheu, using the EIR that has been developed and tested by the sub. The sub will provide training materials on the EIR, but Digital Square and the MOH will be responsible for many of the pilot deployment aspects such as coordination and training.

24. What Client Registry software has been implemented in Malawi?

- a. The Client Registry software implemented is Demographic Data Exchange (DDE). It is a custom build system by one of the digital health service providers in Malawi.

25. Regarding the Hospital Wide Information System, we should have access to the source code, so we can build our module within it. Is there any GitHub link for the source code?

- a. HWIS source code is currently not available on a public GitHub repository. The work developed under this scope will need to be published within an open source license agreed upon by all stakeholders.

26. Are there existing systems that the new solution needs to integrate with other than the systems mentioned?

- a. Please refer to the answer to question 1 above.

- 27. Regarding SMS capabilities, is the contractor required to integrate directly with a specific mobile network operator (such as Airtel or Orange) or is there flexibility to use an aggregator service?**
- For SMS notifications, there is a local aggregator that handles SMS routing to the mobile network operators.
- 28. Could you elaborate on the 'turn on and turn off ability' for SMS alerts? Is this something the end-user should control or is it admin controlled?**
- The ability to turn SMS alerts on and off should be an admin-controlled function. For example, the ability allows SMS alerts to be turned off when an immunization campaign is over or when client follow-up is no longer required.
- 29. Regarding "Send birth notification to the civil registration and vital statistics (CRVS) system" (Section 6.1, Page 9). How should the proposed module interact with the CRVS system, using application programming interfaces (APIs) or CRVS system specific integration?**
- This integration is not in the scope of the project but might be considered in later phases.
- 30. Could you provide more details on the "business rules for decision-support"? What kinds of rules are we looking at?**
- These are rules followed at facilities for delivering immunization services according to screening guidelines and the national vaccine schedule. These rules are based on factors such as vaccine type, age of patient, number of doses, and time elapsed since last dose.
- 31. How should the facility identity management features interact with existing databases or registries, if any?**
- There is a need to interface with the master health facility registry (MHFR) which can use Excel for export and import. The Malawi MHFR is available [here](#), with an explorer version available [here](#).
- 32. What specific reports and dashboards are required for the immunization program?**
- There are 15 reports specified on page 29 of the [system and user requirements document \(SURD\)](#).
- 33. Can you provide a list of all user roles that will interact with the system?**
- The system should be able to provide configurable, role-based access to different user types. In addition to the listed health workers on [page 8 of the SURD document](#), stakeholders will also need access to the system to access reports. Detailed requirements are part of this scope of work. Below is the list of users who interact with the system:
 - Community Health Volunteer
 - Health Surveillance Assistant (HSA)
 - Expanded Programme on Immunization (EPI) Coordinator
 - National Supply Chain Officer

- v. Cold Chain Technician
- vi. System Administrators
- vii. Stakeholders

34. What types of access levels are required for different roles (e.g., read-only, read-write, admin)?

- a. The system should be able to provide configurable, role-based access to different user types. Detailed requirements are part of this scope of work. HSAs and facility-level users will need read and write access, whilst district and central level users will need read only rights. System administrators at different levels will need admin rights to configure the system and users.

35. Are there any roles that require special permissions or access to sensitive information?

- a. Yes. This is an individual based information system with PII and therefore the solution must provide appropriate role-based access.

36. What are the primary responsibilities for each user role within the system?

- a. HSA at facility level: The HSA will use the system daily and should be able to search for a client, view previous vaccines given, and record new vaccines given.
- b. District EPI Coordinator, DEHO, DHO and other district staff: These positions will use the system to review vaccines provided in the district and view aggregate reports.
- c. EPI Central level staff and stakeholders: These positions will view aggregate reports for vaccines provided and for number of clients vaccinated.

37. Are there specific actions or tasks that certain roles are not allowed to perform?

- a. This is an individual based information system with PII; therefore, the solution must provide appropriate role-based access.

38. Do any roles have responsibilities that extend outside the system, such as communicating with other databases or manually following up on tasks?

- a. No.