

Terms of Reference (TOR)

Strengthening Digitalization of HRH Competence Development through Fellowship Information System

1. Purpose

The purpose of this assignment is to support the Directorate of Health Workforce Quality, Directorate General of Health Workforce (Ditjen SDM), Ministry of Health (MoH) of Indonesia, in strengthening the quality and governance of health sector fellowship programs through the fellowship information systems.

This assignment aims to advance effective, equitable, and sustainable fellowship programs aligned with national health service system needs, while establishing a unified digital ecosystem that supports fellowship planning, implementation, monitoring, and competency development for medical specialists. The assignment will complement and extend existing national digital platforms by integrating fellowship processes with SATUSEHAT health workforce data.

The key objectives include:

- a. Design and implement an integrated fellowship information system that integrating SATUSEHAT health workforce data, and by automating registration, multi-stage selection, recommendation and digital Letter of Acceptance issuance, payment processes, and financial monitoring through a single digital platform.
- b. Strengthen fellowship implementation mechanisms by supporting collegiums and hospitals with digital tools for recommendation and LOA issuance, enabling transparent, auditable processes, and real-time monitoring of available fellowship seats to support national priority programs, including needs in rural remote areas.

2. Background

The Ministry of Health has a mandate to improve the quality and equitable distribution of health human resources to meet national health service needs. Fellowship scholarships for specialist doctors constitute one of the strategic mechanisms to strengthen subspecialty expertise and support national health priorities. Fellowship programs are designed to strengthen referral health services and improve access to subspecialist care across regions. As of recent program implementation, 1,747 fellowship-trained specialist doctors have been deployed across Indonesia, while approximately 1,300 additional fellowship graduates are still required to meet national service targets.

However, current fellowship implementation is constrained by fragmented and partially digitalized processes. Registration is only partially supported by the SATUSEHAT Platform, while recruitment, verification, selection, and payment monitoring remain largely manual and disconnected across stakeholders. This creates inefficiencies, limited transparency, and risks of data inconsistency. To address these gaps, the development of an integrated Fellowship Information System is required to improve the management of fellowship programs. The system will function as a single digital gateway, integrating with SATUSEHAT and related platforms to enable structured, transparent, and auditable end-to-end fellowship management in support of Indonesia's digital health transformation agenda.

3. Planned Timeline

Estimated Start Date: May 2026

End Date: April 2027

The total timeline for project is 12 months, including 4 month implementation

4. Scope of Work and Deliverables

4.1 Preparatory Coordination and Activity Planning

This component focuses on initial coordination and planning with key stakeholders to ensure a shared understanding of objectives, scope, and expected outputs.

Activities include:

- Coordination meetings with the Directorate of Health workforce quality, the Directorate General of Health workforce, MoH and other relevant stakeholders to discuss activity preparation and the implementation.
- Discussions to clarify the scope of work, sequencing of activities, and coordination arrangements for the assignment.

Deliverables:

- An agreed detailed activity plan, including timeline and coordination arrangements.

Note:

The preparatory coordination and activity planning will be supported by 2 hybrid meetings at the Directorate of Health workforce quality office, with a maximum of 15 participants per meeting.

4.2 Requirements Analysis and System Design

The activity is to define detailed system requirements that reflect operational workflows across stakeholders, including the Directorate of Health Workforce Quality, collegiums, hospitals, and fellowship participants.

Activities include:

- Map current fellowship workflows and identify digitalization needs
- Define user roles, access hierarchy, and authorization protocols.
- Develop functional requirement specifications and system architecture design.
- Define interoperability requirements with SATUSEHAT APIs and HRH datasets.
- Prepare data governance and cybersecurity requirements aligned with national standards.
- Develop implementation of roadmap and risk mitigation plan.

Deliverables:

- Approved Functional Requirements Specification (FRS).
- Validated workflow diagrams and user journey maps.
- System Architecture and Technical Design Document.

Note:

Desk Work (internal preparation, system development, and technical coordination), no meeting required

4.3 System Development and Configuration

This phase focuses on building and configuring the Fellowship Information System based on approved specifications. The contractor shall develop modular system components enabling end-to-end fellowship management within a secure and scalable digital environment.

Deliverables:

No	Development Plan	Description
1	Dashboard	Displays real-time fellowship status (quota, number of participants)
2	Registration	Handles participant application and admission both in-country and abroad, queues, and timelines
3	Integration (Satu Sehat, LMS, SIBK)	Merges separate apps into one integrated system
4	Continuous System	Tracks participants from registration to completion
5	College and Host Hospital Module	Allows colleges and hospitals to conduct assessments in one platform
6	Module for Hosting Hospitals	Allows hospitals issue LoA (Letters of Acceptance) directly from the app.
7	Payment Module	MOH (HW Quality) provide scholarship linked to SIBK (payments incl. tuition fee, living allowance, transport)
8	Participant Module	Participants log activities in the app.
9	Fellowship Team Module	Monitors all processes and issues decisions within the app.

Design Web Fellowship Information System (1/4)
s.kemkes.go.id/SimulasiAplikasiFellowship2026

Kemenkes
 Homepage contains Dashboard Fellowship

Kementerian Kesehatan
 Republik Indonesia

Program Fellowship Kemenkes 2026
 Sehat Negeriku, Terjamin Namerd, Nakes dan Alkesnya

FORMULIR FELLOWSHIP

1092
 Jumlah Lulusan Fellowship

225
 Jumlah Program Fellowship

77
 Jumlah SS Penyelenggara

23
 Menitisi Fellowship

13
 Belum Ada Fellowship

10 Lulusan Fellowship Terbanyak
 Program fellowship dengan jumlah lulusan tertinggi

Dashboard Fellowship

10 Lulusan Fellowship Terbanyak

No	Nama	Jumlah Lulusan
1	RSUP H. Djuanda	10
2	RSUP Dr. Sardjito	8
3	RSUP Dr. Kariadi	7
4	RSUP Dr. Soetomo	6
5	RSUP Dr. G. B. Jengalana	5
6	RSUP Dr. Pangeran Soedibyo	4
7	RSUP Dr. Wahidin Sudirohusodo	3
8	RSUP Dr. M. Djamil	2
9	RSUP Dr. H. M. Djamil	1
10	RSUP Dr. H. M. Djamil	1

Dummy of fellowship information system can be accessed at <https://s.kemkes.go.id/SimulasiAplikasiFellowship2026>

Note:

Desk Work (internal preparation, system development, and technical coordination), no meeting required

4.4 Integration and Testing

This phase ensures interoperability between the Fellowship Information System and SATUSEHAT, including SIBK (Sistem Informasi Beasiswa Kementerian Kesehatan)

Activities include:

- Configure and operationalize system interoperability between the Fellowship Information System, SATUSEHAT, and SIBK (Sistem Informasi Beasiswa Kementerian Kesehatan) through API integration, data mapping, authentication setup, and alignment with national digital health interoperability standards
- Conduct end-to-end integration testing and validation to ensure secure, accurate, and real-time data exchange across systems, including troubleshooting, performance optimization, and coordination with relevant MoH system owners.

Deliverables:

- Fully functional and validated system integration between the Fellowship Information System, SATUSEHAT, and SIBK, supported by an approved Integration Testing and Validation Report.

Note:

The testing will be supported by dissemination meetings at the Directorate of Health workforce quality office, with a maximum of 30 participants.

4.5 System Implementation and Data Migration

This phase ensures fellowship participant data is not lost/reset during system transition.

Activities include:

Plan and execute secure system implementation and data migration to ensure all existing fellowship participant data are accurately transferred, validated, and preserved without loss, reset, or disruption during the transition to the new Fellowship Information System.

Deliverables:

Approved Data Migration and Implementation Report confirming successful transfer, validation, and integrity of fellowship participant data with no data loss during system transition.

Note:

- Migration activities shall be coordinated with MoH system administrators to ensure continuity of services.
- *Desk Work (internal preparation, system development, and technical coordination), no meeting required*

4.6 Training and User Support

This phase strengthens institutional capacity to ensure effective adoption and sustainable use of the system by national and subnational stakeholders. Training shall focus on operational competency, system administration, and troubleshooting to enable independent system management by MoH.

Activities include:

- Conduct user and administrator training sessions for Ministry of Health teams, professional colleges, and partner hospitals, including hands-on system operation and troubleshooting.
- Establish and operate a user support mechanism during the initial operational period, including issue tracking and system usage monitoring.

Deliverables:

- Audit Trail System: Complete logging of user activities and approvals.
- Technical Documentation Package, including system architecture documentation, user manuals, and administrator guides aligned with the deployed Fellowship Information System.

Note:

The training will be supported by 1 dissemination meetings at the Directorate of Health workforce quality office, with a maximum of 30 participants.

4.7 Handover and Project Closure

This phase formalizes system transfer of the Fellowship Information System to the Ministry of Health and ensures sustainability through complete documentation, knowledge transfer, and operational readiness. The contractor shall ensure MoH ownership and long-term maintainability of the system.

Activities include:

- Conduct final system verification and acceptance review covering all system modules, integrations, and platform functionalities.
- Transfer source code, system configuration files, and technical assets, and conduct knowledge transfer sessions for MoH technical teams.
- Deliver final documentation and support the system acceptance and project closure process.

Deliverables:

- System Handover Package, including source code, system configuration files, and related technical assets.
- Final Project Completion and Acceptance Report, confirming system handover and operational readiness.

Note:

The project closure will be supported by meeting at the Directorate of Health Workforce, with a maximum of 40 participants.

5. Requirements – Planning and the Evaluation Criteria

To undertake the above-mentioned key tasks listed under #4, the vendor/consultant should demonstrate.

- a. capability to design scalable and secure system architecture integrated with national platforms (e.g., SATUSEHAT, LMS, and related systems)
- b. strong understanding of fellowship business processes, including registration, multi-stage selection, LOA issuance, scholarship processing, monitoring, and reporting
- c. experience in developing and integrating web-based government systems, particularly within the health sector
- d. familiarity with SPBE standards, data governance, audit trails, and role-based access control
- e. clear and feasible development plan covering design, development, integration, testing, implementation, and handover

The proposal should address the criteria in this #5 Requirement – Planning and the Evaluation Criteria and the Annex 1 Evaluation Criteria.

To ensure quality and timeliness of work, the project will require continuous interaction and consultation with Directorate of Health Workforce Quality – DG Health Workforce, Pusdatin, MoH, and involvement of the WHO technical unit/experts.

6. Characteristics of Provider

The assignment shall be undertaken by a legally registered company or institution in Indonesia with demonstrated capacity and experience relevant to the scope of work described in this ToR.

The Provider must demonstrate:

Mandatory

- Proven experience in the design and implementation of government-scale web-based information systems, preferably in the health sector.
- Demonstrated experience in developing integrated digital platforms covering end-to-end workflows such as registration, selection, monitoring, reporting, and financial management.
- Proven experience in system integration and interoperability, preferably with national digital health platforms such as SATUSEHAT or comparable systems.
- Demonstrated understanding of digital governance, data protection, audit trail mechanisms, and compliance with SPBE or relevant regulatory standards.

Desirable

- Prior experience working with the Ministry of Health, other government institutions, or international organizations.

- Familiarity with health workforce management systems, fellowship or scholarship management platforms.
- Experience facilitating stakeholder consultations, system validation workshops, or multi-institutional coordination processes.

The Provider is expected to work closely with the Ministry of Health, particularly the Directorate of Health Workforce Quality and relevant technical units such as Pusdatin, and to coordinate with professional collegiums, partner hospitals, and WHO throughout the assignment. The Provider shall assign a multidisciplinary team with adequate technical and operational capacity, with clearly defined roles and responsibilities, to ensure effective system integration with SATUSEHAT and timely delivery of all agreed outputs.

The implementation team shall include the following specialists:

No	Position	Volume	Month
1	Project Manager / Enterprise (Solution Architect)	1 person	4
2	Business / System Analyst	1 person	4
3	UI-UX Designer / Frontend Developer / DevOps	1 person	4
4	Backend Developer / Database Engineer / Integration Specialist / IT Security Specialist	1 person	4
5	Quality Assurance / Technical Writer / Change Management & Training Specialist	1 person	4
6.	Administration and Finance Staff	1 person	4
TOTAL		6	4

All experts must demonstrate experience in government-scale digital systems.

Qualifications and Role Table for SI Fellowship IT Team Positions based on INKINDO 2025 Standards and Kemenkes SPBE requirements for health IT specialists. Minimum education, certifications, experience, and specific roles defined for 4-month accelerated project.

Qualifications and Roles by Position

No	Position	Minimum Education	Certifications	Experience Required	Primary Roles & Responsibilities
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1	Project Manager / Enterprise (Solution Architect)	S2 IT/ Management/ Enterprise Arch	<ul style="list-style-type: none"> • PMP, PRINCE2, Scrum • TOGAF 9+, AWS Architect 	<ul style="list-style-type: none"> • 10+ years project mgmt • 5+ health IT • 8+ years enterprise systems 	<ul style="list-style-type: none"> • Overall delivery, stakeholder mgmt, SPBE compliance, risk mitigation, Kemenkes reporting • Microservices design, SATUSEHAT FHIR integration, PostgreSQL HA architecture, SPBE level 4
2	Business / System Analyst	S1 Medicine / Informatics + domain	<ul style="list-style-type: none"> • CBAP, health informatics • UML, BPMN 2.0 	<ul style="list-style-type: none"> • 5+ years SDM Kesehatan, fellowship process • 5+ years system analysis 	<ul style="list-style-type: none"> • Requirements gathering, BPMN workflow, LOA process mapping, GRB data specification • Use case design, ERD modelling, API specification, RBAC design
3	UI-UX Designer / Frontend Developer / DevOps	S1 Design Communication/ Informatics	<ul style="list-style-type: none"> • Figma Expert, HCI • React 18/Vue 3, TypeScript • AWS DevOps, Kubernetes 	<ul style="list-style-type: none"> • 3+ years health app design • 3+ years PWA development • 4+ years cloud health infra 	<ul style="list-style-type: none"> • Role-based dashboards, PWA mobile-first, accessibility WCAG 2.1, health UX patterns • Role-based React dashboard, real-time updates, mobile PWA, health data visualization • EKS GovCloud, CI/CD GitLab, blue-green deploy, 99.9% SLA monitoring
4	Backend Developer / Database Engineer / Integration Specialist / IT Security Specialist	S1 Informatics	<ul style="list-style-type: none"> • Laravel/ Node.js, PostgreSQL • PostgreSQL DBA, AWS RDS 	<ul style="list-style-type: none"> • 4+ years backend health systems • 5+ years PostgreSQL production 	<ul style="list-style-type: none"> • Microservices (Laravel/Node), REST APIs, workflow engine, FHIR HL7 integration • HA cluster setup, partitioning, materialized views

			<ul style="list-style-type: none"> • FHIR HL7, OAuth2 • CISSP, BSSN SPBE 	<ul style="list-style-type: none"> • 5+ years SATUSEHAT integration • 5+ years health IT security 	<p>GRB, performance tuning 10k TPS</p> <ul style="list-style-type: none"> • FHIR Practitioner mapping, SIBK webhook, SATUSEHAT sync, API gateway • RLS PostgreSQL, OWASP Top10, WAF config, SPBE clearance audit, MFA SSO
5	Quality Assurance / Technical Writer / Change Management & Training Specialist	S1 Informatics/ S2 Management	<ul style="list-style-type: none"> • ISTQB, Selenium • SPBE Doc Standard • Prosci, health training 	<ul style="list-style-type: none"> • 3+ years test automation • 3+ years technical docs • 5+ years health IT adoption 	<ul style="list-style-type: none"> • E2E testing Cypress, load test 1000 concurrent, FHIR validation, security scanning • SPBE tender docs, API documentation, user manuals, GRB reports, as-built drawings • Stakeholder training Kemenkes/RS/kolegium, UAT facilitation, SOP development, post-go-live support
6	Administration and Finance Staff	S1 Business, Administration, or related subject		<ul style="list-style-type: none"> • 2 years experiences of administrative support 	<ul style="list-style-type: none"> • Handling the administration and finance issue, including financial reporting

CVs and relevant experience to the above characteristics should be submitted with the proposal.

Information about the roles/responsibilities and the proportionate time that will be dedicated to the project should also be included in the submission and in the financial proposal.