Maturity of the health information system of South Sudan: Progress, Gaps and Priorities for investment

Health Information System (HIS) Maturity refers to the level of development, integration, and effectiveness of a country's health information system. It assesses how well a health system collects, manages, analyzes, and uses health data for decision-making and policy development.

Why is HIS Maturity Assessment Important?

- Provides a structured approach to improving health information systems.
- Identifies gaps and areas for investment in health data management.
- Strengthens evidence-based decision-making in the health sector.
- Enhances coordination across health institutions and stakeholders.

How Does HIS Maturity Assessment Help?

- Evaluates the current status of health information systems.
- Guides improvements in data governance, collection, analysis, and utilization.
- Supports national and subnational health strategies for better health outcomes.
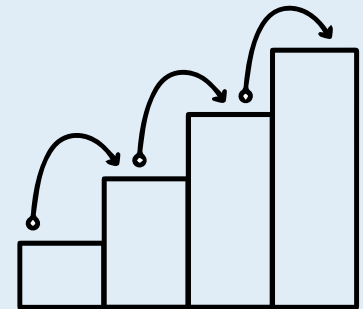
Key Components of a mature HIS

- **Governance Systems for National Health Information:** Ensures that strong governance structures are in place, which will ensure health information systems are well-coordinated and managed at all levels of the health sector.

- **Systems for Collection, Storage, and Transmission of Data:** Focuses on the strengthening of mechanisms of data collection, ensuring that stored data is safe, and paving the way for easy information transmission across various platforms and institutions.

- **Capacity for Analysis and Use of Health Data:** Seeks the enhancement of the capacity of countries to effectively analyze health data and use the results to inform policy decisions. By strengthening the capacity of health sector stakeholders, the tool contributes to evidence-based national health policies and effective interventions.

- **Health Data Communication Systems:** Communication systems that are undertaken by relevant stakeholders in communicating health data. This will ensure that health data collection and usage in decision-making are appropriately followed through.

In line with WHO's mandate for strengthening health information, the Health Information System Functionality (Maturity) Assessment tool was developed to support countries and health sector stakeholders to improve health outcomes through the enhancement of health information systems. The tool plays a role in strengthening evidence-based decision-making through concentrated effort on strategies for strengthening health information generation and management, improving statistical systems, and enhancing the leadership of countries toward the production and effective use of health data.

Application of the tool

The tool was developed as a self-assessment tool for countries to identify areas of strengths and those that require further development or focus. It has been designed to provide insight into the maturity stage of the country's health information system and has thus become strategic in planning and continuous improvement of health information management.

Participants ranged from MOH, NBS, and partners, ensuring validation of responses through discussion and concurrence on the online tool. Upon completion of the tool, the focal person appointed from MOH submitted the response on behalf of the country. The platform then consolidated, analyzed, and presented the findings to enable the team to review, discuss, and determine immediate next steps.

Presentation of Maturity Score:

The Maturity score is presented out of a score of 100 from nascent maturity (0-30%) to fully matured (91-100%). An overall score was presented as well as per component and each of the subcomponent to enable the country to drill down in identifying gaps and formulate initiatives.

Nascent maturity	Minimal maturity	Low maturity	Early maturity	Developing maturity	Moderate maturity	High maturity	Full maturity
0-30%	31-40%	41-50%	51-60%	61-70%	71-80%	81-90%	91-100%

HIS Landscape

Data Completeness: The completeness rate for routine reports is recorded at 62%, while the completeness rate for indicator data stands at 57%.

Electronic Management Information Systems

South Sudan has implemented the District Health Information System 2 (DHIS 2) at both the national and sub-national/district levels, enabling better data management and reporting capabilities. However, the integration of health program data into DHIS 2 is in progress indicating a gap in system unification and data interoperability.

The percentage of health facilities with comprehensive facility-wide electronic systems is recorded at 22.4%, reflecting a low adoption rate of digital systems at the facility level.

Recording and Reporting of Deaths

The proportion of registered deaths with cause-of-death information is currently at 0%, reflecting an absence of cause-of-death documentation across the health system. Additionally, no facilities are implementing the International Classification of Diseases for coding cause-of-death data, and the full death registration coverage rate is also 0%.

The country has adopted the International Form of the Medical Certificate of Cause of Death (2016 version) for reporting purposes; however, implementation at the facility level remains absent. The death notification rate is recorded at 20%, but none of these notified deaths have been officially registered or assigned cause-of-death information. This lack of data extends to the application of ICD codes, as there is no evidence of deaths with correctly assigned ICD-11 codes.

The absence of a comprehensive system for death registration and cause-of-death reporting underscores the need for strengthened efforts in civil registration and vital statistics (CRVS) to enhance mortality data collection, improve health planning, and enable policy interventions.
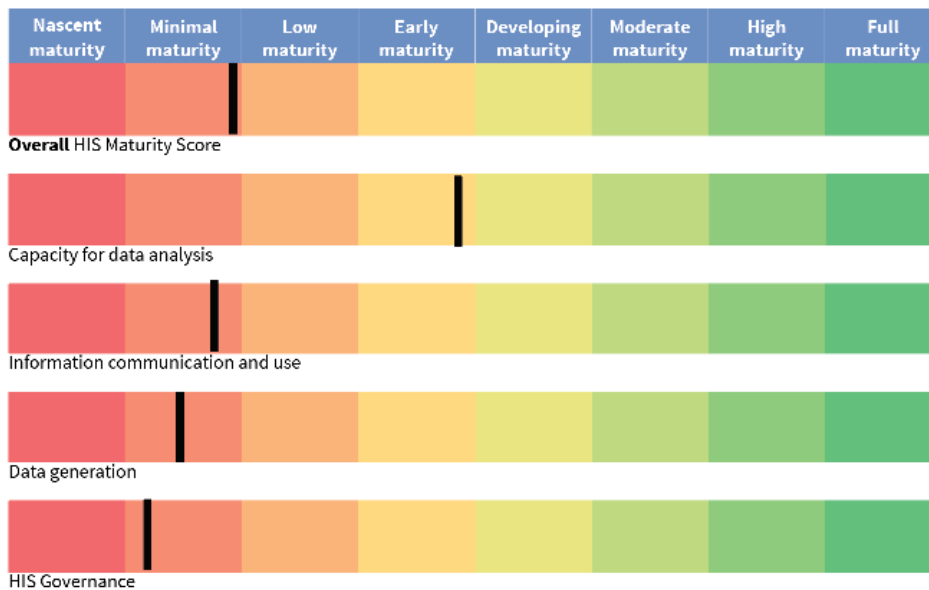
Information Use

South Sudan has made progress in developing health information resources over the last five years. Statistical bulletins, health sector performance assessment reports, and annual data quality review reports have been consistently produced, reflecting an effort to monitor and evaluate health sector performance.

Lack of an online, open-access platform for centralizing and disseminating health data and information remains a challenge. This limits the accessibility and utility of health data for decision-making and policy formulation by stakeholders at all levels.
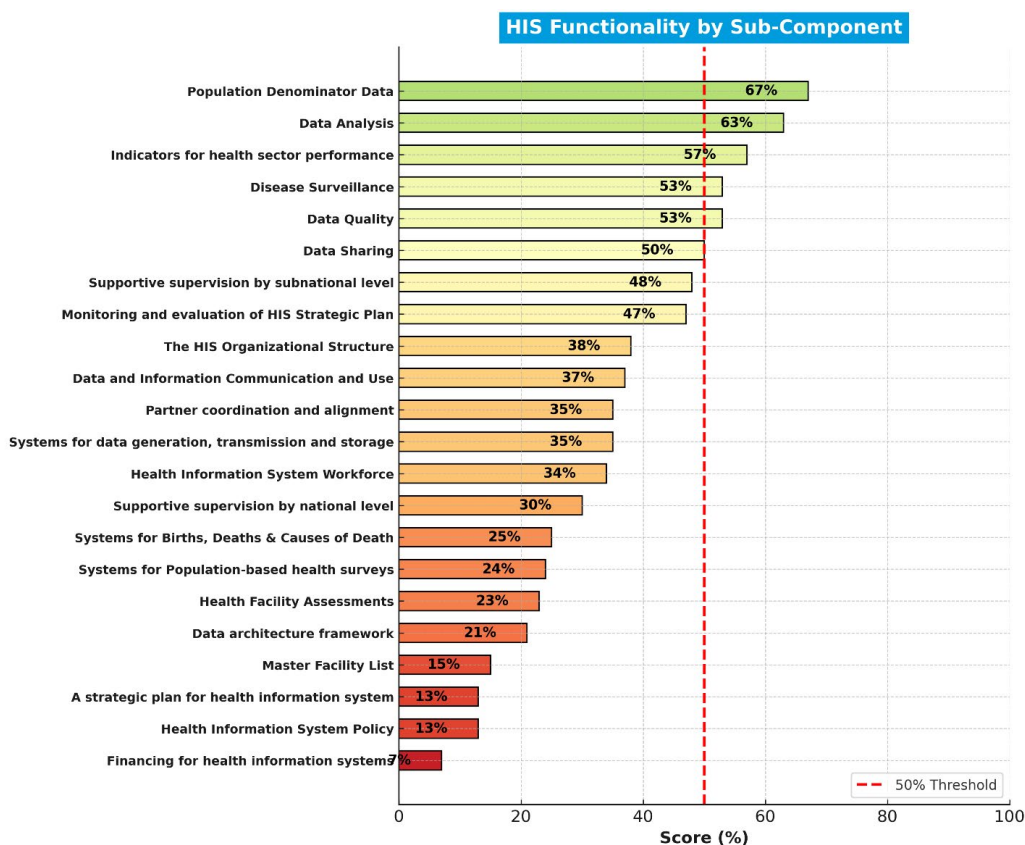
FINDINGS: HIS Maturity Scores

Overall, South Sudan's HIS maturity score is 40.5%, classified as Minimal Maturity. This score reflects significant gaps across the HIS components, with varying performance levels in data management, governance, and system capabilities.

- Capacities for Data Analysis scored 58%, the highest among assessed components, indicating early maturity in utilizing analytical tools for health data.

- Systems for Data and Information Communication and Use scored 37%, reflecting minimal maturity and limited capability in data sharing and usage for decision-making processes.

- Data Generation scored 35%, highlighting constraints in capturing and managing health data.

- HIS Governance scored 33%, emphasizing the need for strengthened leadership, policies, and regulatory frameworks.

HIS Functionality by Sub-Component

Sub-Component	Score (%)
Population Denominator Data	67%
Data Analysis	63%
Indicators for health sector performance	57%
Disease Surveillance	53%
Data Quality	53%
Data Sharing	50%
Supportive supervision by subnational level	48%
Monitoring and evaluation of HIS Strategic Plan	47%
The HIS Organizational Structure	38%
Data and Information Communication and Use	37%
Partner coordination and alignment	35%
Systems for data generation, transmission and storage	35%
Health Information System Workforce	34%
Supportive supervision by national level	30%
Systems for Births, Deaths & Causes of Death	25%
Systems for Population-based health surveys	24%
Health Facility Assessments	23%
Data architecture framework	21%
Master Facility List	15%
A strategic plan for health information system	13%
Health Information System Policy	13%
Financing for health information system	7%

Performance by Sub-Component:

- **Strengths:** Population denominator data (67%) and data analysis (63%) demonstrate relatively higher functionality.
- **Moderate Areas:** Disease surveillance, data quality, and data sharing range from 50% to 57%.
- **Weak Areas:** Critical gaps are evident in HIS financing (7%), strategic planning for the HIS (13%), and health facility assessments (23%), indicating nascent levels of functionality.
- **Challenges:** Systems for generating birth, death, and cause-of-death data (25%) and the HIS workforce (34%)

Recommendations

The recommendations focus on addressing gaps in HIS functionality by establishing essential components that are currently nascent and strengthening areas with low maturity that require scaling up.

Establish
- Financing for health information systems
- Health information system policy
- Strategic plan for HIS
- Master facility list
- Data architecture framework
- Health facility assessments
- Systems for generating population-based health surveys and censuses
- System for generating information on births, deaths and causes of death
- Supportive supervision by the national level

Scale up
- Health information system workforce
- ystem for data generation, transmission, and storage
- Partner coordination and alignment
- Data and information communication and use
- The HIS organizational structure
- Monitoring and evaluation of health information system strategic plan
- Supportive supervision by the national level to facilities
- Data sharing
- Data quality
- Data surveillance
- Indicators for assessing the progress and performance of the health sector and health-specific strategic plans

Accelerate
- Data analysis
- Population dominator data

Reference:

World Health Organization. (2024). *User Manual; Health Information Systems Functionality Assessment Tool*. World Health Organization.

This is one of the WHO South Sudan Knowledge Series written by: Matur Them Tieng, Ag/Director for HMIS and Vital Statistics (MOH), Anabay Mamo (WHO), Jeff Owino (WHO), David Ochan (WHO)

February 2025

The development of these knowledge series is coordinated by Anabay Mamo, Strategic Health Information, WHO, South Sudan