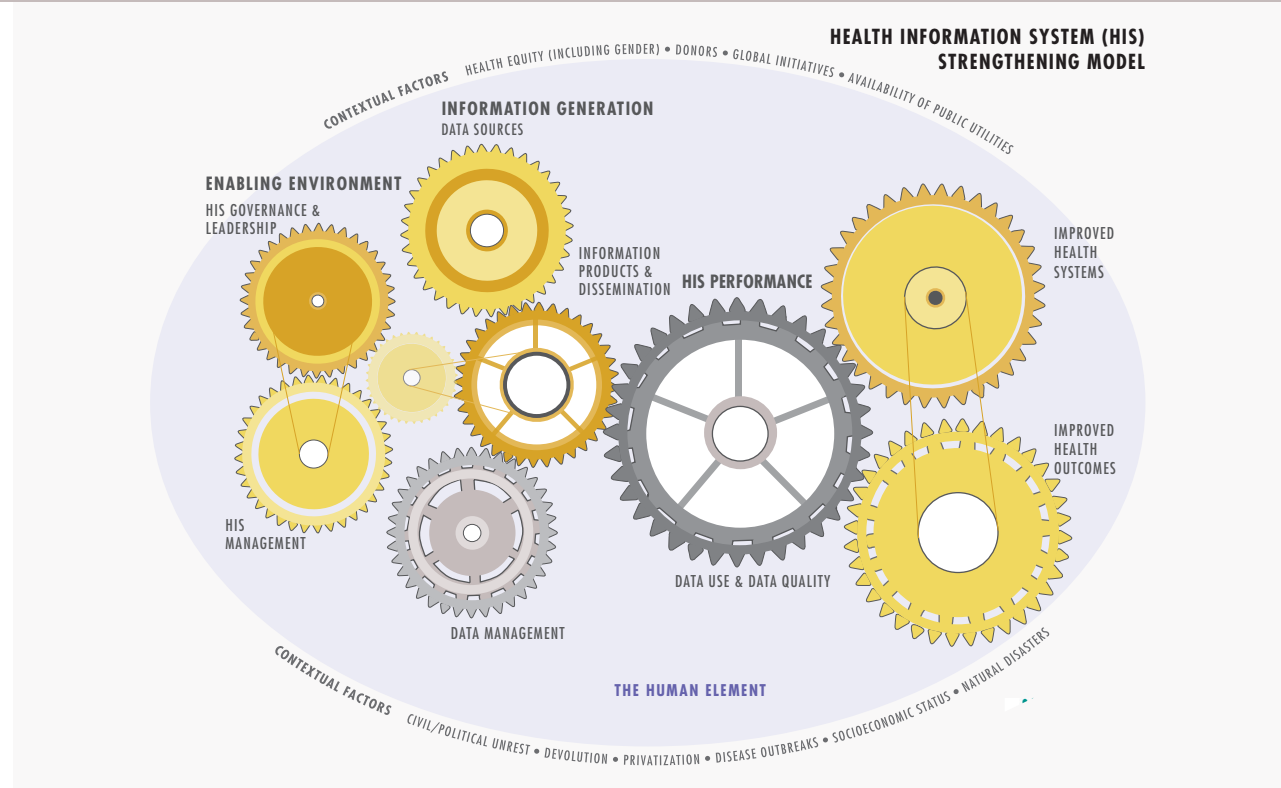# Strengthening Health Information Systems in Mali

MEASURE Evaluation supported Mali's Ministry of Health and Public Hygiene (MOH) from 2013–2019, especially the National Malaria Control Program (NMCP) and the National Directorate of Health (DNS) in the unification of Mali's health information system (HIS). The goal of this unification was for the HIS to yield better-quality data for effective health system planning and timely response to disease outbreak. Mali's HIS comprises a system for local (site-based) health information, a hospital information system, and an epidemiological surveillance system. These systems are managed by different governing bodies and were previously housed on a variety of platforms that were unable to communicate or share data. The local HIS had limitations preventing it from producing malaria-specific information or aiding in the detection of an Ebola outbreak. These limitations led to the creation of additional, parallel information systems. These multiple reporting systems and duplicative indicators resulted in a heavy data collection burden for healthcare providers and poor data quality. MEASURE Evaluation supported the MOH to combine nine systems in a single platform using District Health Information Software, version 2 (DHIS2) and roll it out at all levels of the healthcare system (from community-based facilities to regional hospitals and the MOH). In the process, the MOH streamlined the number of data elements and reporting requirements to minimize reporting burden and improve data quality and data use.
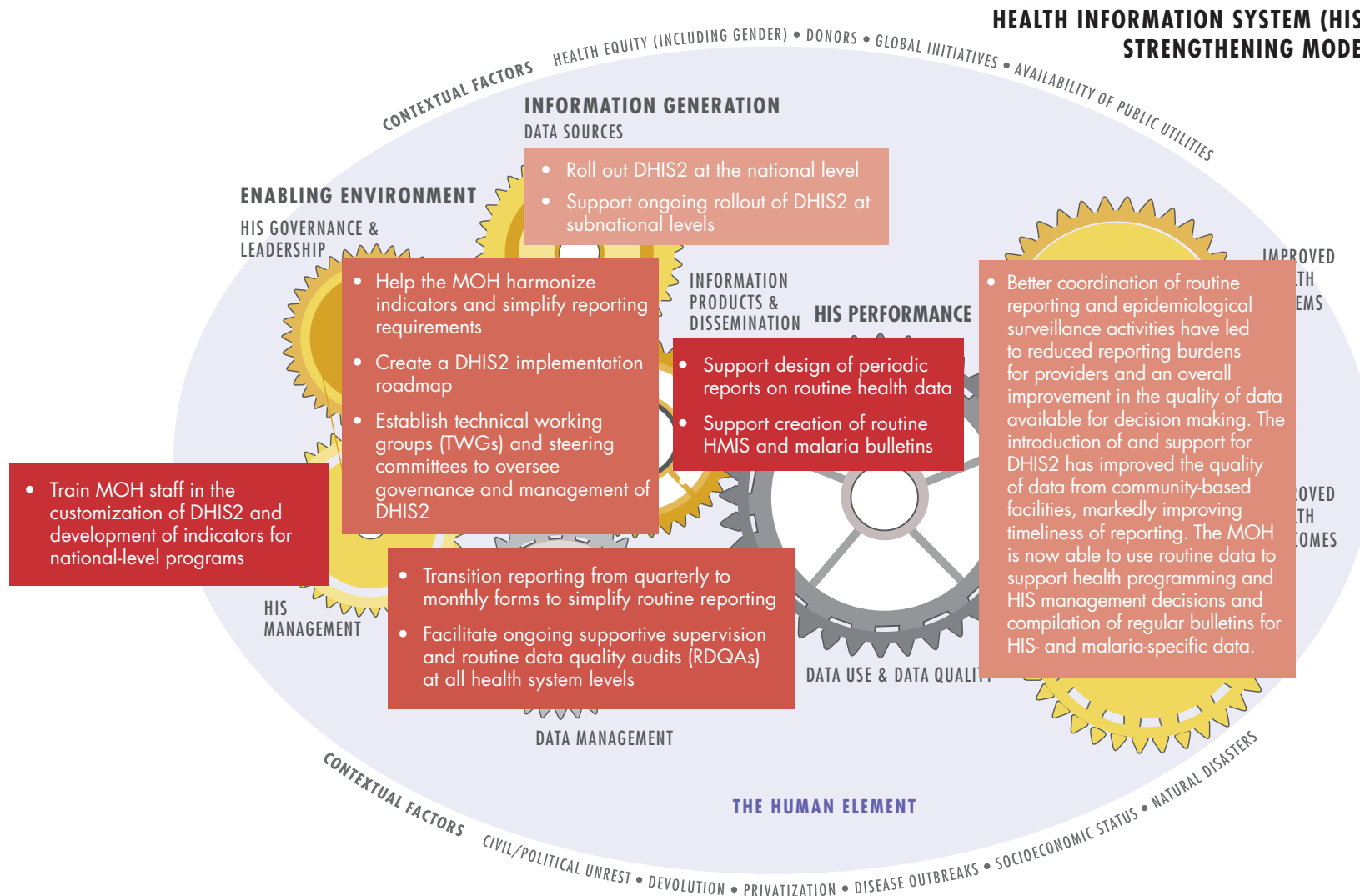

MEASURE Evaluation's work to support Mali's MOH has strengthened both the "enabling environment" and "information generation" areas of the HIS identified in MEASURE Evaluation's Health Information System Strengthening Model (HISSM) shown above.

For example, our work to support the MOH in the harmonization of its indicators and development of a roadmap to implement the DHIS2 platform has contributed to the country's enabling environment for a strong HIS. The rollout of the DHIS2 platform nationally, along with the streamlining of reporting requirements and improvements to data quality assurance practices, have strengthened the information generation area of Mali's HIS.

The illustration below superimposes on the HISSM depictions of MEASURE Evaluation's activities in the enabling environment and information generation areas to support better coordination of Mali's HIS subsystems. By displaying key interventions across the model, we see their strategic interaction and how this combination of interventions works together to strengthen data quality and data use at all levels of the health system. The table below lists additional MEASURE Evaluation activities that support HIS strengthening.

MEASURE Evaluation's Work to Harmonize Reporting and Improve Data Quality in Mali

HEALTH INFORMATION SYSTEM (HIS) STRENGTHENING MODEL

CONTEXTUAL FACTORS • HEALTH EQUITY (INCLUDING GENDER) • DONORS • GLOBAL INITIATIVES • AVAILABILITY OF PUBLIC UTILITIES

INFORMATION GENERATION
DATA SOURCES

- Roll out DHIS2 at the national level
- Support ongoing rollout of DHIS2 at subnational levels

ENABLING ENVIRONMENT
HIS GOVERNANCE & LEADERSHIP

- Help the MOH harmonize indicators and simplify reporting requirements
- Create a DHIS2 implementation roadmap
- Establish technical working groups (TWGs) and steering committees to oversee governance and management of DHIS2

INFORMATION PRODUCTS & DISSEMINATION

HIS PERFORMANCE

- Support design of periodic reports on routine health data
- Support creation of routine HMIS and malaria bulletins

- Train MOH staff in the customization of DHIS2 and development of indicators for national-level programs

- Better coordination of routine reporting and epidemiological surveillance activities have led to reduced reporting burdens for providers and an overall improvement in the quality of data available for decision making. The introduction of and support for DHIS2 has improved the quality of data from community-based facilities, markedly improving timeliness of reporting. The MOH is now able to use routine data to support health programming and HIS management decisions and compilation of regular bulletins for HIS- and malaria-specific data.

IMPROVED HEALTH SYSTEMS

IMPROVED HEALTH OUTCOMES

HIS MANAGEMENT

- Transition reporting from quarterly to monthly forms to simplify routine reporting
- Facilitate ongoing supportive supervision and routine data quality audits (RDQAs) at all health system levels

DATA USE & DATA QUALITY

DATA MANAGEMENT

THE HUMAN ELEMENT

CONTEXTUAL FACTORS • CIVIL/POLITICAL UNREST • DEVOLUTION • PRIVATIZATION • DISEASE OUTBREAKS • SOCIOECONOMIC STATUS • NATURAL DISASTERS

This graphic depicts MEASURE Evaluation activities to support Mali's HIS strengthening. Additional work from across the HISSM can be found in the table below.

MEASURE Evaluation's Other HIS Strengthening Work in Mali						
HISSM areas	**HISSM subareas (gears)**	**Health information system strengthening activities**				
		2015	**2016**	**2017**	**2018**	**2019**
Enabling environment	**HIS governance and leadership**	• Convene national HIS governing bodies in weekly meetings	• Finalize the DHIS2 governance document • Draft an information flow improvement plan • Create an HIS stakeholder mapping report • Conduct a situational analysis of disease surveillance systems	• Develop Ebola indicators and standard data collection forms for disease surveillance • Establish a national stakeholder TWG to coordinate Ebola surveillance data quality • Finalize an action plan to strengthen the disease surveillance system • Design DHIS2 standards	• Support development of new NMCP strategic and monitoring and evaluation (M&E) plans • Support existing and new central-level TWGs for DHIS2 customization and management • Assist the DNS with an action plan for rolling out a disease surveillance system nationwide	• Support creation of a new NMCP M&E operational plan and disseminate an updated M&E plan • Support the NMCP to develop a malaria surveillance, monitoring, and evaluation (SME) system that is aligned with the new Global Technical Strategy

MEASURE Evaluation's Other HIS Strengthening Work in Mali						
HISSM areas	**HISSM subareas (gears)**	**Health information system strengthening activities**				
		2015	**2016**	**2017**	**2018**	**2019**
Enabling environment	**HIS management**	• Train NMCP staff at the national and subnational levels to use mobile phones for data transmission • Train data managers on the malaria surveillance database • Assist the MOH in the development of supervision tools and revision of the data management procedures manual • Hold supportive supervision training of trainers (TOT) at the national level	• Hold a national-level TOT on the Ebola surveillance system • Train MOH staff on data management standard operating procedures (SOPs) • Support the NMCP's malaria M&E lead training • Support provision of reporting forms, laptops, and guidance documents at national and subnational levels	• Hold workshops on routine and surveillance data use in decision making (national and subnational levels) • Implement a national competition and seminar on data analysis and use, to share best practices • Organize a regional malaria M&E training workshop • Plan TOTs on data analysis and DHIS2 surveillance modules • Conduct an M&E capacity assessment of the NMCP at national and subnational levels using the Monitoring and Evaluation Capacity Assessment Toolkit (MECAT)	• Develop a logistic management information system (LMIS) dashboard in DHIS2 • Conduct a PRISM assessment • Develop indicators and reporting tools for the community-based disease surveillance component of the HIS • Promote excellence and sharing of best practices through a national data quality competition • Train national and regional staff on how to conduct RDQA	• Train regional NMCP staff on DHIS2 malaria data extraction and use • Train and support regional NMCP staff on SME principles • Develop a malaria surveillance guide and tools aligned with standards set by the Global Technical Strategy for Malaria 2016–2030[1] • Configure the community syndromic notification • Adapt the data review guidance document • Host a national data use competition • Provide RHIS course scholarships for MOH staff • Adapt the RDQA for the disease surveillance system and train national- and regional-level staff from 3 regions to conduct it • Train relevant central-level information technology staff from DNS, the Planning and Statistics Division, and the National Agency for Telehealth and Medical Informatics of Mali in server management

1 World Health Organization. (2015). Global technical strategy for malaria 2016–2030. Retrieved from https://www.who.int/malaria/publications/atoz/9789241564991/en/

MEASURE Evaluation's Other HIS Strengthening Work in Mali						
HISSM areas	**HISSM subareas (gears)**	**Health information system strengthening activities**				
		2015	**2016**	**2017**	**2018**	**2019**
Enabling environment	**Data sources**		• Unify multiple, parallel subsystems for disease surveillance: HIV, NMCP, and family planning information using the DHIS2 platform		• Pilot electronic registers in two community health facilities with the intention of supporting a district scale-up	• Implement electronic registers for reproductive health and childhood immunization in two districts
Enabling environment	**Information products and dissemination**		• Report on a 2014 evaluation of a mobile reporting system for routine malaria data for the NMCP	• Support compilation and dissemination of the 2016 NMCP annual report • Standardize DHIS2 surveillance data reports • Disseminate findings from the MECAT assessment with the NMCP for Year 4 work planning	• Support compilation and dissemination of an NMCP monthly bulletin and quarterly HIS bulletin • Develop 8 malaria bulletins with analysis of routine data to promote data use for decision making • Develop and disseminate the 2017 statistical yearbook	• Disseminate NMCP monthly bulletins • Develop and disseminate HIS quarterly bulletins • Support the NMCP to develop monthly malaria bulletins on its own • Support the MOH in compiling the 2018 statistical yearbook

MEASURE Evaluation's Other HIS Strengthening Work in Mali

HISSM areas	HISSM subareas (gears)	Health information system strengthening activities				
		2015	**2016**	**2017**	**2018**	**2019**
Enabling environment	**Data management**	• Equip health centers with mobile phones and facilitate Internet access • Collaborate with stakeholders to develop supportive supervision tools • Train NMCP regional and district staff on supervision tools • Train regional and district staff in data analysis, use, and dissemination	• Train staff at the subregional level on data use specifically for malaria surveillance • Monitor data quality in DHIS2 and at the site level on an ongoing basis • Help the NMCP and DNS complete RDQAs as part of supportive supervision visits	• Develop SOPs for Ebola data • Support the NMCP and DNS to conduct ongoing RDQAs during supportive supervision visits • Support ongoing data quality assurance practices for DHIS2 data	• Train staff at the district level on how to conduct RDQA • Support the NMCP and DNS with RDQAs as part of continued support for supportive supervision visits • Support DNS refresher trainings for health workers on using the disease surveillance system • Support DNS/CPS refresher trainings for health workers on new features of DHIS2 • Support data review meetings to assess completeness and timeliness of data and discuss trends in routine and surveillance data • Organize a workshop to train regional and district health teams in malaria SME fundamentals	• Provide technical assistance to the NMCP for more independent data analysis • Set up validation rules for malaria indicators in DHIS2 • Organize data review sessions on data use and data analysis • Revise the hospital reporting forms and customize in the DHIS2 • Train hospital data managers and other new HIS managers on DHIS2, to improve data collection, data quality, and data use • Train community health workers (CHWs) on the DHIS2 disease surveillance-module • Conduct post-training follow-up and supervision visits to support CHW implementation of the community-based system