CHISU Results in Action

Building Digital Maturity for Digital Health Transformation in Indonesia
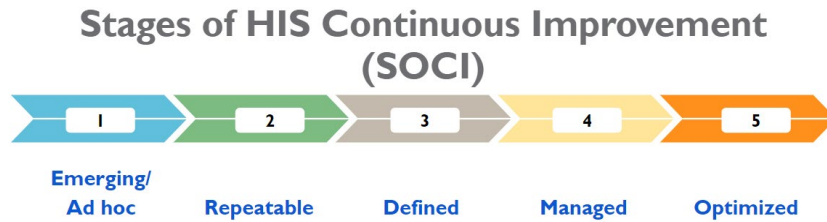
BACKGROUND

Indonesia is undergoing a digital transformation of their health system guided by a Digital Health Transformation Roadmap, a four-year blueprint for digitalization developed by the country's Ministry of Health (MOH). After a year of implementing the Roadmap, the MOH recognized the need to identify a set of standardized metrics to assess and track the country's readiness for this transformation by measuring digital maturity. To do so, their Center for Data and Information Technology (Pusat Data dan Teknologi Informasi or Pusdatin), in collaboration with the Country Health Information Systems and Data Use (CHISU) program, developed the Digital Maturity Index (DMI) in August 2022. The DMI assesses the domains of leadership and governance, management and workforce, information and communications technology (ICT) infrastructure, standards and interoperability, and data quality and use, using the scale indicated in Figure 1. Overall, the DMI provides stakeholders with: 1) a clear metric of the digital health maturity level in Indonesia; 2) recommended action and intervention to improve digital health maturity; 3) general feedback on digital maturity at the subnational level; and 4) key areas of action and investment to improve the digital maturity level. By integrating the DMI as a key component of planning and work plan implementation, the MOH can now make comprehensive and targeted investments to support the acceleration of digital transformation in the health sector, both at the national and subnational levels.

Figure 1: SOCI scale

Stages of HIS Continuous Improvement (SOCI)

1	2	3	4	5
Emerging/ Ad hoc	Repeatable	Defined	Managed	Optimized

STEPS TAKEN

Participants discussing results and developing action plans during the 2022 DMI Consensus Workshop. Photo: CHISU

First, CHISU and Indonesia's MOH collaboratively developed and implemented the DMI. Key parameters of digital maturity that were a priority for the MOH were first mapped, examining previous health information system (HIS) assessments and feedback from national and subnational stakeholders, and applying the Navigator for Digital Health Capability Models. Based on this thorough review, the MOH selected the HIS Stages of Continuous Improvement (SOCI) tool as the model on which to adapt and create the DMI. The assessment protocol and self-assessment instruments were developed, using District Health Information Software 2 (DHIS2) for the tool, and several rounds of socialization were conducted with key stakeholders to ensure there was consensus on the purpose and utility of the tool.

Seventy-eight target respondents came from the MOH and subnational groups that spanned six main islands and archipelago regions, covering five directorates of the MOH and 49 subnational levels (provincial, district, and city health offices). Focus group discussions were also held with representatives of the MOH, subnational health offices, development partners, and other relevant organizations. A national consensus workshop was conducted to validate the results, reach agreement on the final maturity measurements, and determine the areas for investment to improve digital maturity in Indonesia. The results were then shared with an array of stakeholders at the national and subnational levels through a national dissemination event, during which panels of experts discussed each area of the domain, including the implications of the results for

Indonesia.

Indonesia faced a few challenges in implementing the DMI. It was clear that some respondents did not fully grasp the questions in the self-assessment tool. While the process was led solely by the MOH, there were still delays in data collection. Stakeholders accepted the DMI and wanted to participate but faced conflicting priorities, which delayed completion of their self-assessment and ultimately contributed to delayed data analysis and results consensus. There were also challenges in aggregating subnational level responses to contribute to a national score.

Facilitator reviewing the self-assessment tool with a representative from a District Health Office in October 2022. Photo: CHISU

Several important lessons were learned from the process: 1) some adjustments to the DMI protocol at the subnational level were needed to provide better data quality; 2) follow-up beyond the analysis on the DMI's dashboard was needed despite providing visualization and metrics—it clearly did not replace strategic discussions on targeting investments for improving digital maturity; 3) gender balance considered throughout the implementation was important to ensure that men and women's voices were heard in data collection, analysis, and results validation; 4) overall validation and advocacy of subnational and national level digital maturity helped to ensure that the DMI results were in line with the actual conditions seen and needs for improvement of digital maturity were accurately identified; and 5) use of global goods such as the Navigator for Digital Maturity Models, SOCI, and DHIS2 accelerates the pace of implementation.

RESULTS + NEXT STEPS

DMI assessment results indicated that there are several priorities for investment across all DMI domains, with the national digital maturity level of 2.49—indicating that HIS activities are at the repeatable level and moving toward the defined level. The results for each subdomain can be seen in Figure 2. Highlighted results and recommended actions include the following:

- **Leadership and Governance:** HIS strategy documents and regulations at national and subnational levels need to be implemented. HIS units also need to be established at the subnational level.

Figure 2: DMI results for each domain

	Emerging	Repeatable	Defined	Managed	Optimized
Leadership & Governance	2.33				
ICT Infrastructure	2.8				
Standards & Interoperability	2.85				
Data Quality & Use	2.31				
Management & Workforce	2.2				

- **Management and Workforce:** There is no substantial or consistent budget allocation for the HIS at the subnational level and thus there is a need to do a more thorough budget mapping to improve the budget allocation processes. There are no specific HIS capacity-building efforts or career paths for staff managing digital tools. There is a need to incorporate information technology (IT) competencies as a requirement in the recruitment process for select positions, as well as advocate for decision maker-level positions at the subnational level.

- **ICT Infrastructure:** There is a lack of infrastructure at the subnational level, both in terms of quality and quantity, as well as a lack of budget for infrastructure maintenance. An overall national budget allocation for infrastructure, as well as a tool to evaluate infrastructure requirements is necessary, with accompanying standard operating procedures (SOPs) and capacity building for ICT maintenance at the subnational level.

- **Standards and Interoperability:** The MOH has released and continues to develop new regulations, data standards, and interoperability guidelines. Information systems are still fragmented and often health program-specific. Advocacy for more regulations is needed to enforce use of standards, and increase subnational-level capacity on interoperability, as well as catalog existing HIS-related guidelines to avoid duplication and confusion. Interoperability and integration among information systems is needed to reduce
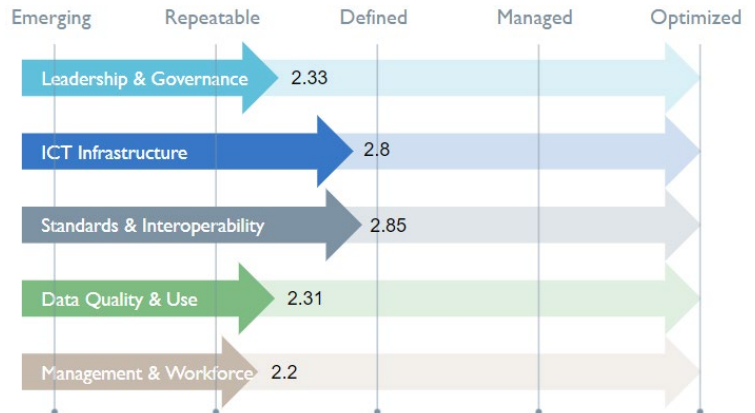
data entry burden.

- **Data Quality and Use:** Routine data is available but siloed within each health program, leading to fragmentation of information access and use. Access to this routine data and the ability of stakeholders to conduct data analysis as needed must improve. The data quality assessment process needs to be institutionalized as a routine activity.

Ibu Tio, Head of Pusdatin, Ministry of Health, speaking at the 2022 DMI Results Dissemination Workshop. Photo: CHISU

Building on this assessment, the MOH and CHISU will integrate the results into work planning at the national and subnational levels. CHISU will also support the MOH to refine the DMI and data collection tools and processes for the subnational level to improve usability, as well as adapt the tool for use at the primary care level. CHISU will also apply the tool in 2023 to support annual metrics on digital maturity progress, and continue to support the MOH in refinements to DMI data analytics for decision makers.

"We look forward to expanding the scope of this assessment, especially at the provincial, district, and city levels, so that every local health office could assess its level of digital maturity and be able to select the appropriate strategy to increase its digital capacity, to support digital transformation in the health sector," noted Ibu Tio, Head of Pusdatin, Ministry of Health.