

Assessing data readiness of sub-national institutions using the Data Compass



Understanding data usage challenges and opportunities that
inform decision-making processes in rural health facilities

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ABOUT THE DATA COLLABORATIVES FOR LOCAL IMPACT (DCLI) PROGRAM

DCLI is a unique partnership between the Millennium Challenge Corporation (MCC) and the President’s Emergency Plan for AIDS Relief (PEPFAR) to strengthen the use of data for more effective decision-making, particularly in areas that impact health, gender equality, and economic growth. Learn more at www.dcli.co.

ABOUT THIS PUBLICATION

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Summary

Since 2016, a unique partnership between MCC and PEPFAR adopted a systems thinking approach to strengthen Tanzania's community of actors using data to advance health, gender, and economic growth outcomes. This program, Data Collaboratives for Local Impact (DCLI), was intentionally designed to strategically inject key resources into that system, with the hope that they would have sustaining impact that outlasts the program's implementation period.

During this period, Tanzania's public health industry was undergoing the Direct Health Facility Financing (DHFF) reforms, an effort to decentralize decision making processes so facilities can be more autonomous and adaptable in their operations and better meet local needs. Key stakeholders, including the Ministry of Health, wanted to learn how prepared rural facilities were in managing these systems and processes to inform their decisions.

To compliment these critical reforms and further its goal of empowering key stakeholders at the subnational level, DCLI commissioned an assessment of rural health facilities' readiness to use data to inform their decisions in the Kyela District using the Data Compass tool, developed by IREX.

Findings

Rural health facilities in Kyela have a vibrant data-sharing culture that improve local services



30 of the 31 total health facilities in the Kyela District contributed to the data-flow survey which identified an active information sharing environment and collaborative decision-making process with community members.



The more autonomous decision-making process fostered from DHFF is favorable for facility staff to address local issues directly and ensure resources reach their community.

However, significant obstacles remain to achieving efficient data usage



Facility staff have limited capacity to efficiently use DHFF digital systems to identify insights that inform decision making processes.



Health facilities lack adequate infrastructure to use DHFF systems. Unreliable electricity makes facility staff dependent on hard copies resulting in duplicate data entry and reliance on external support.



Inconsistent data security policies pose a significant risk for facility staff working with large volumes of patient information in hard copy form.

Specific district-level support across all facilities can provide meaningful improvements:

- Invest in capacity building programs for staff to use required software and identify insights to inform decisions.
- Develop a step-by-step user guide that prepares staff to use DHFF digital systems in order to foster consistent processes.
- Improve facility infrastructure to ensure all have reliable electricity, internet connection, and computers.
- Establish a data protection policy for facilities to ensure consistent and responsible practices for data storage and access.

Overall, this report highlights the challenges that emerge when policy and procedure improvements outpace capacity and infrastructure investments at the sub-national level, as well as concrete opportunities to strengthen this ecosystem towards achieving institutional and systems-level improvements.



Data Compass

The Data Compass is an adaptable assessment tool that helps institutions in any sector strategically identify data-related improvements needed to optimize decision making within their unique environment. This tool includes two instruments for analysis that inform an actionable plan:



Structured and facilitated assessment



Survey and visualization of data flows

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Context



Responsive and impactful development programming relies on the effective and strategic use of data to inform decisions. Between 2016 and 2018, the [Data Collaboratives for Local Impact \(DCLI\)](#) program—a unique partnership between MCC and PEPFAR to strengthen evidence-based decision-making for improved HIV/AIDS and health, gender, and economic outcomes—implemented a constellation of activities across Tanzania to help institutions, entrepreneurs, and government actors use data more effectively and systematically. The three projects that implemented DCLI initiatives in Tanzania between 2016 and 2019 are the following:

- The [Tanzania Data Lab \(dLab\)](#): A premier center for excellence and innovation in data use. Located at the University of Dar Es Salaam’s College of ICT, the dLab converted into a locally owned and operated NGO in 2018.
- The [Data for Local Impact Innovation Challenge \(DLI\)](#): An innovation competition that challenged Tanzanian youth to develop data and digital solutions to health, gender equality, and economic growth problems.
- [Data Zetu](#): A multi-partner project in which IREX is the leading implementer that operated in fourteen wards across Tanzania, supporting local institutions to build and adopt data use capabilities to strengthen evidence-based decision-making.

Separately, in 2017 the Ministry of Health, Community Development, Gender, Elderly and Children (MoHCDGEC) and the President’s Office of Regional Administration and Local Government (PORALG) began implementing the Direct Health Facility Financing (DHFF) program – a health sector reform initiative that decentralizes the disbursement of facility funds so facilities can plan and procure funding based on local challenges and priorities. DHFF is the most recent improvement to reforms conducted in 2000 which aimed to decentralize operations by placing the powers to manage health facility finances and service delivery to the District Council Health Management Team (CHMT)¹. The disbursement of funds into CHMT accounts instead of health facility accounts, however, created a loophole for use of facility funds on other priorities set by CHMT instead of improving the services delivery of health facilities. This led to primary health care facilities, particularly rural communities, experiencing shortages on essential medicine and compromising the availability and quality of services. It was envisioned that implementation of the DHFF program will improve community participation and autonomy, efficiency and effectiveness of available resources, and ultimately improve the quality of care at the local level².

Since 2016 and in tandem with the Data Zetu project, IREX, a global development and education organization, has established itself as a thought leader in approaches for improving data-

¹Dr. Ulisubisya, Mpoki M., and Eng. Mussa I. Iyombe. Direct Health Facility Financing Guide. Prepared by MoHCDGEC and PORALG, Page 2.

² DHFF Guide, Page 3.

informed decision-making capacities for leaders and public serving institutions. In 2019, IREX concluded a research study on the data-readiness of local civic institutions in Moldova to address community needs³. The findings from this study along with the DCLI-funded Data Zetu work at the subnational level on [subnational data flows and spaces](#) informed the design of a new IREX product called the Data Compass, which is intended to help institutions strategically identify where to invest for the most meaningful improvements to their data usage.

In a continuation of the Data Zetu program’s mission to help government actors use data more effectively and systematically, and with support from Tanzania’s Ministry of Health and PORALG, DCLI commissioned IREX in 2020, as part of the Data Zetu project, to use the Data Compass to assess rural health facilities ability to use data to understand how prepared they were to use the DHFF system. IREX focused the assessment on facilities in the Kyela District because of the significant past engagement and relationships developed in previous activities during the Data Zetu project. This assessment marks the first comprehensive use of the Data Compass tool.

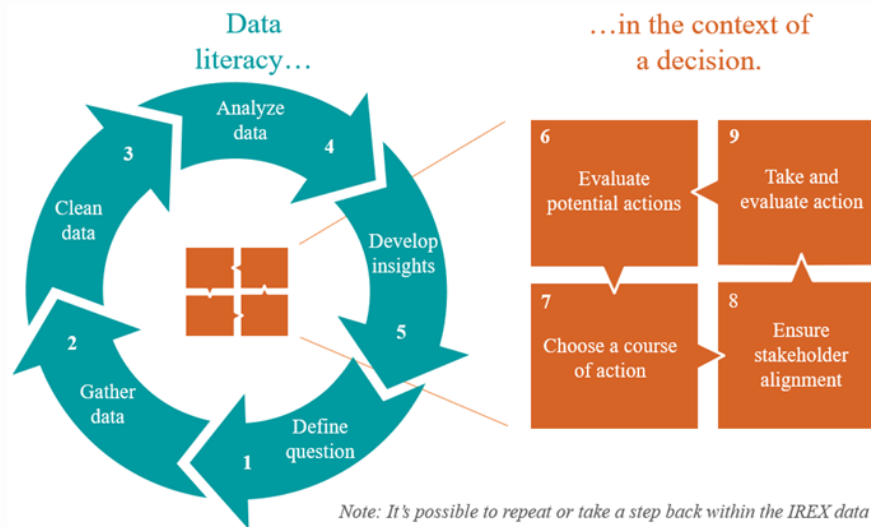
³ Vasdev, Samhir. “Getting more value from data: What we've learned from piloting a new tool with local governments”, Prepared by IREX, 2019 - [link](#)



Introduction

Efforts to help institutions enhance their data usage to inform decisions oversimplify the process of converting insights into action and lack context to the unique ways each institution uses data in their environment. As an immediate response, many organizations turn to technical skills training and invest in analytic software as a means to improve the capacity and output of their staff, but this response often fails to consider other parts of the data use process. As shown in Figure 1, IREX's data-informed decision-making (DID) model expands the typical data literacy lifecycle by adding data usage in the context of a decision.

Figure 1: IREX's data-informed decision-making (DID) model



This model identifies the decision-making process as the central output for data usage in an organization, and cross cutting capacities, resources, and structures support the efficiency of that output. This is where the Data Compass tool comes in.

The Data Compass, a new tool developed by IREX, aims to help public serving institutions strategically identify where they should invest limited resources to improve their use of data and serve their communities more effectively. This tool is intended to work closely with an organization's leadership and staff to design goals that are specific to their operational environment, and identify reasonable recommendations to make sustainable improvements to a specific data-use ecosystem. The Data Compass approaches this process by assessing eight dimensions of data use capacities, resources, and policies to holistically understand an institution's strengths and weaknesses towards a specific data-use goal. By clearly understanding the state of each dimension towards a specific institutional goal, the data compass will "point" to the areas that will foster the most meaningful growth for sustainable improvement.

To inform the assessment of each of these dimensions, the Data Compass tool demands close collaboration with institutional leadership and staff to understand the actors and systems involved in a specific data-use ecosystem, and develop clear goals for what they envision achieving in an “ideal” operational environment. With contextual guidance, Data Compass facilitators adapt two data collection tools. The first tool is a comprehensive questionnaire that guides interviews and group discussions with key staff on granular components of each dimension. The second tool is a survey software called Flow Mapper that conducts a dataflow analysis on how information is shared and accessed between people and systems.

Based on the insights identified in the data collection and analysis process, an Action Plan is developed by an organization’s leadership to strategically focus investments and identify steps for improvement. Accordingly, and as a critical follow-on step of the Data Compass implementation in Kyela, an Action Plan template will be shared with each health facility in Kyela to complete independently and with continued guidance from the Tanzania Data Lab. This report showcases the analysis process and key takeaways that informed the district-wide recommendations and facility action plan structure.



Methodology

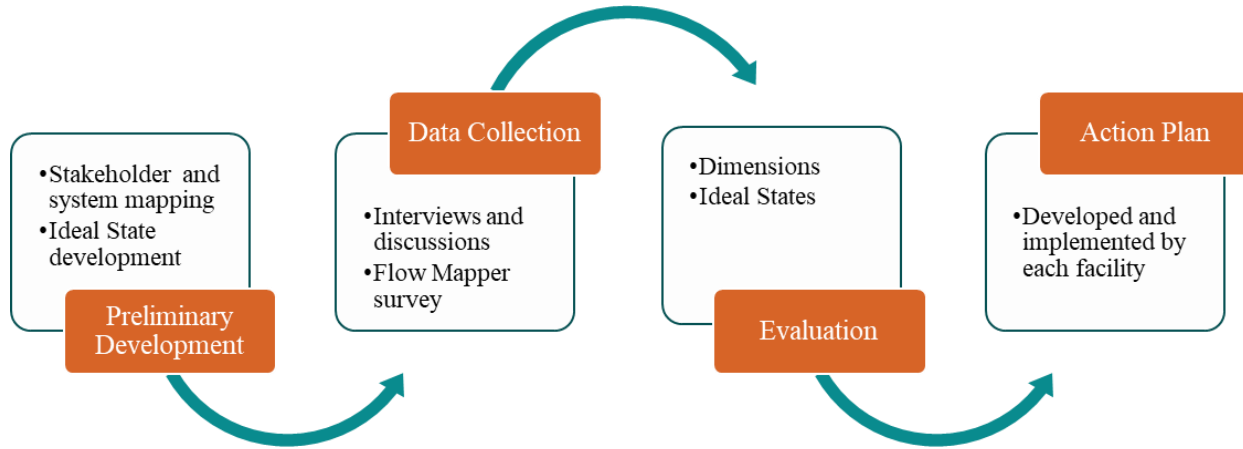
The implementation of the Data Compass tool is intended to be a highly collaborative process that seeks to engage with staff across an institution for the purpose of identifying actionable recommendations to their contextual needs. This process allows the Data Compass tool to be adaptive to different sectors and environments by customizing the indicators within each dimension. In this assessment, the IREX team in partnership with the Tanzania Data Lab aimed to understand the extent to which health facilities in the Kyela District are prepared to collect, manage, and share financial data for the purpose of identifying strategic improvements. These strategic improvements are informed by identifying the status of each of the eight Data Compass Dimensions, which guide the data collection and analysis process (see Figure 2). These Dimensions make up the capacities, resources, and policies that impact the use of data within an organization and help inform the focus of the action plan. This section will dive into the high-level methodology of the Data Compass tool, but Annex A provides an expanded methodology that includes important contextual details about health facilities in Kyela, how IREX adapted data collection tools used to inform the findings in this report, and key biases and limitations to consider from the overall process. For the best understanding of identified findings, please reference Annex A before proceeding to the Findings and Comprehensive Dimension and Ideal State Evaluation Sections.

Figure 2: Data Compass Dimension Descriptions



The comprehensive methodology consists of four major components that are each conducted in close consultation with institutional staff. Figure 3 below outlines the high-level flow of this methodology including the development and implementation of an Action Plan.

Figure 3: Data Compass Methodology Process



Ideal States and adaptation

The customization of “Ideal States” within each Dimension makes the Data Compass tool adaptable in different sectors and contexts. Ideal States are indicators of progress established at the institutional level that reflect the best situation for specific data-usage components within each Dimension across all facilities, offices, and programs. Ideal States guide the adaptation of data collection tools and the overall evaluation process of the Data Compass. Developing ideal states demands a clear vision from institutional leadership on how improved data-usage can contribute to their long-term goals, and significant collaboration is required with staff and local experts to understand their unique environment to achieve these goals. This process is the first and most critical step in the adaptation of the Data Compass tool and allows institutions to prioritize and develop specific components it finds most valuable, with the guidance of IREX technical staff to ensure it aligns accurately with the respective Dimension. Once identified, these Ideal States act as a roadmap during the data collection and analysis process, with the goal being to gather enough information to efficiently evaluate each Ideal State and, as a result, their respective Dimension. As an example, below are some Ideal States within the Datasets Dimension that were identified for this assessment.

Figure 4: Sample of Dataset Ideal States

Datasets that support servicing and financial information for the ILS, PlanRep and FFARS systems exist in analog or digital format.
Relevant datasets are inventoried on a regular (systematic) basis.
There is shared knowledge among facility staff on where to search for and access relevant servicing and financial datasets when needed.
There is a standardized format between datasets for consistent categories that enables longitudinal and cross-dataset comparisons (e.g. common schema for addresses).

Evaluation Criteria

Each Dimension and Ideal State are evaluated on a three-point scale (Low, Medium and High) based on the consolidated insights identified from the data collection and analysis process⁴. While each health facility has their own strengths and unique challenges, the scores identified in this report reflect the major trends identified from the data collection and analysis processes across all facilities. A Low score indicates that significant barriers exist, and systemic changes needs to be made for improvements to be sustainable. A Medium score indicates a favorable structure exists for improvements to be sustainable, but staff face significant limitations regarding what is currently available. A High score indicates a favorable structure exists and staff have what they need to make sustainable improvements.

Figure 5: Dimensions of Data Use Three Point Scale

Evidence of significant obstacles (Low)	Unfavorable condition, but no evidence of significant obstacles (Medium)	Favorable condition (High)
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While an Ideal State and their respective Dimension are related, not all Ideal States are equally valued within the same Dimension. During the process of identifying the Ideal States with facility staff and local experts, insights to which Ideals States are critical to the overall sustainability of each Dimension are discussed and noted. For this reason, Ideal States and Dimensions, while rigorously connected, are evaluated with different considerations. While Ideal States focus on a specific issue, the Dimensions consider the equitable balance between critical and supporting Ideal States. The purpose of scoring each Dimension is to strategically focus attention on critically weak areas. The purpose of scoring each Ideal State is to provide a more granular insight into the strengths and weaknesses that exist within each Dimension and inform potential improvements for facilities to consider when developing their action plan.

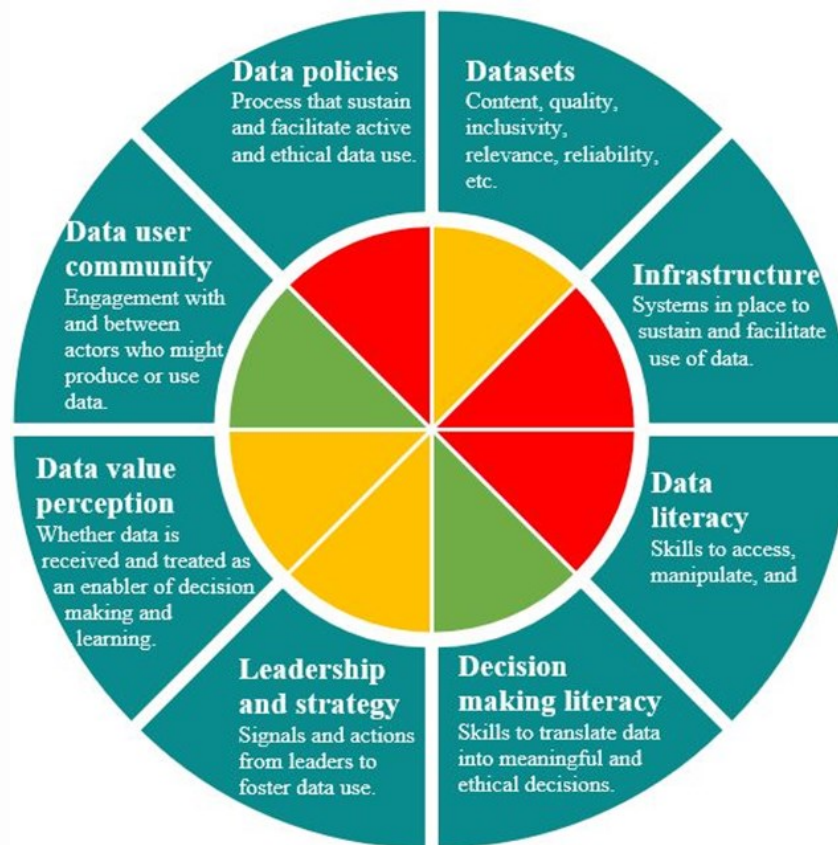
⁴Three-point scoring scale referenced from World Bank [DataToolkit](#)



Findings

Overall, the IREX team’s analysis highlight a strong community-focused decision-making process that is positively fostered by DHFF, but facility staff face challenges with limited capacity and institutional support to improve processes autonomously. The major identified obstacles are poor data literacy for identifying insights to inform planning and improvements, and poor facility infrastructure that make accessing DHFF digital systems challenging and infrequent, and result in dispensaries being dependent on CHMT support. Additionally, inconsistent data security policies pose a significant risk for facility staff working with large volumes of patient information.

Figure 6: Dimension evaluation overview



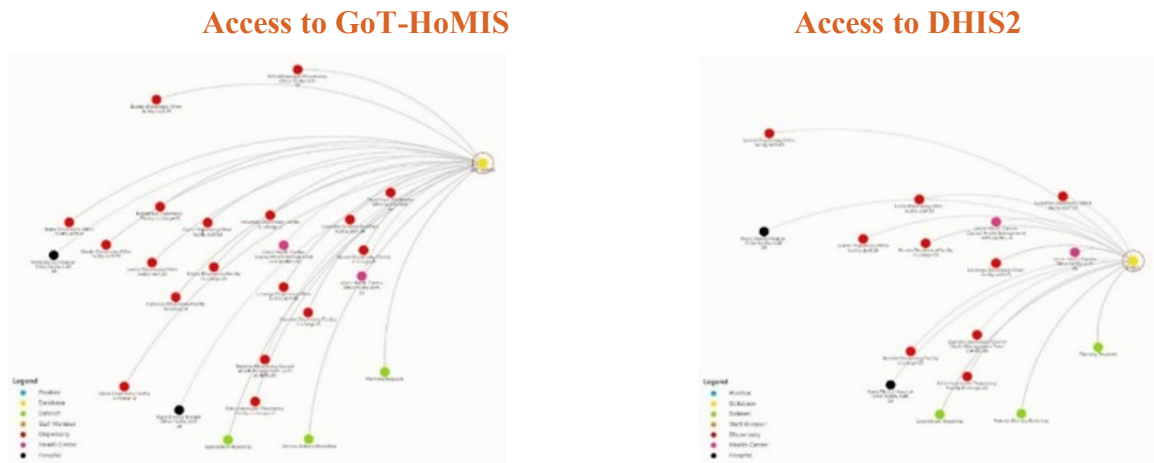
Dimension-Level insights

Evidence of significant obstacles

Infrastructure: Facilities, particularly at the dispensary level, lack computers, required software, and staff capacity to sustainably meet the Direct Health Facility Financing procedures. Inconsistent electricity and internet access force dispensary staff to be dependent on District Council support to enter and manage facility data and requests.

The dataflow analysis showcases the insight that many dispensaries are unable to access systems like GoT-HoMIS or DHIS2, which are interoperable support systems that help manage service delivery and inform decisions. This insight was identified from focusing on the GoT-HoMIS and DHIS2 systems (see Figure 7; systems are in yellow) to filter any respondents that did not indicate access, which resulted in less than half of all dispensaries (indicated in red) remaining in the network.

Figure 7: Flow Mapper Graphs Depicting Access to GoT-HoMIS and DHIS2



Data literacy: Most facility staff do not have the technical skills to analyze and learn from the data they collect. While there is more autonomy for each facility to make decisions, facility leadership at the dispensary level feel they do not have the capacity to use the data available to inform discussions and identify investments. Additionally, many staff at the dispensary level indicated not feeling adequately trained on how to use the required reporting software like FFARS, PlanRep, ILS, and GOTHOMIS.

The significant weakness of this Dimension is a root cause for less favorable status of the Datasets, Leadership and strategy, and Data value perception Dimensions.

Data policies: There are unclear policies and poor infrastructure to securely store and share patient and facility information. While staff approach this issue seriously, major security concerns such as shared login passwords, using personal devices for facility reporting, limited (physical) storage space, and inconsistent processes for storing and destroying hard copies of patient information exist. Additionally, the dependent relationship of many dispensaries with their District Council office demands the duplication of many hard copies of datasets for entry to systems, which are then stored in two separate locations. This poses a significant risk for datasets that may include any sensitive facility information.

Dimension-Level insights

Unfavorable condition, but no evidence of significant obstacles

Datasets: Facility staff have the skills and capacity to accurately enter and manage datasets, and do so routinely, but dispensary staff are held back from improving processes because of poor data literacy and an overly burdensome double entry system – translating manual data collected in hard copies to digital form in required systems.

Leadership and Strategy: The leadership and structure for learning and information sharing to meet community needs exists, but there is a lack of data literacy capacity to improve the information being collected. In many dispensaries this limited capacity exists with facility leadership.

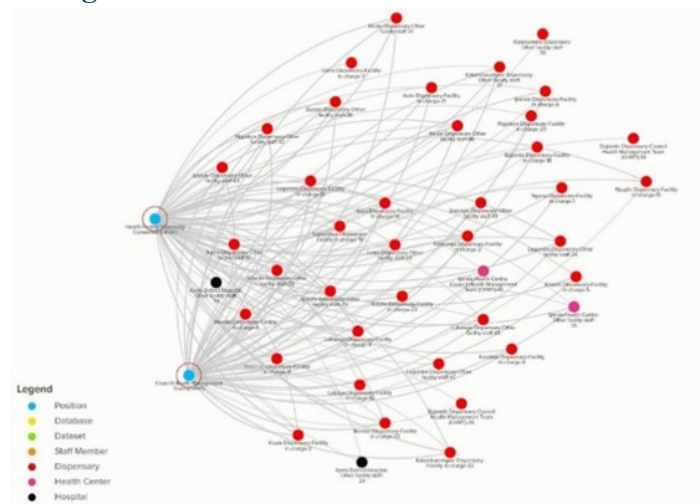
Data value perception: At the dispensary level, there is a general lack of incentive to prioritize learning from data because of the significant challenges staff face to routinely access datasets, at times being dependent on district council support. Additionally, poor data literacy among most staff across facilities limits their ability to identify insights at each level of the organization. These components foster a culture among most staff that data is more of a burden of required collection than a resource for insights.

Favorable conditions

Decision making literacy: Clear decision-making policies and expectations to collaborate with community members and other stakeholders exist and foster meaningful improvements. While significant challenges exist to better use data in the collaboration process, the DHFF program established a vibrant information sharing culture that foster more informed decisions based on community needs. In addition to staff feedback, this was supported by the large number of mutual connections identified from the dataflow analysis between facility staff, CHMT, and HFGC.

Figure 8 shows nearly all respondents (represented in red/pink/black) having a mutual information exchange with CHMT and HFGC (blue). This is indicated by the concave and convex connections that form an ellipse shape between each respondent and the CHMT and HFGC.

Figure 8: Information shared with CHMT and HFGC



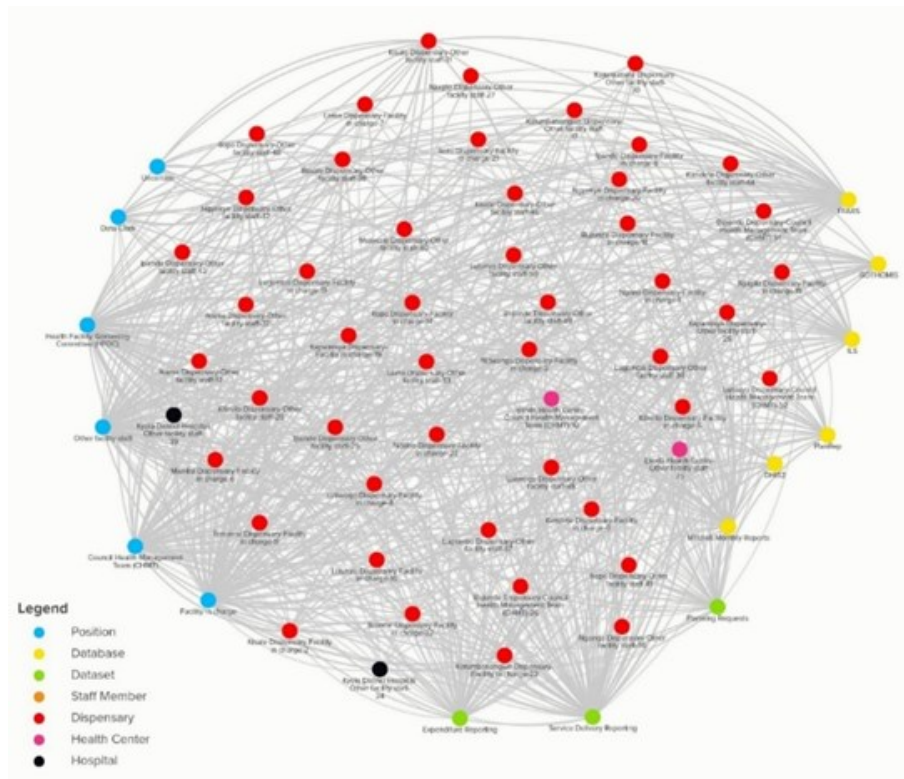
Dimension-Level insights

Favorable conditions

Data user community: Information is routinely shared between facilities and community leadership every three months and there is active engagement between facility staff and community health workers (some of whom are part of the HFGC) to understand immediate community needs. Additionally, the dataflow analysis identified very few gaps between facility staff and other actors. While significant challenges exist for many dispensaries to access and efficiently use certain database systems, all facility staff share information available across several actors.

The extent of this information sharing can be seen in Figure 9, which includes all survey respondents and their connections – demonstrating a significant number and diversity of linkages across the ecosystem. Depicted are the 60 respondents (indicated in red, pink and black; in the center of the map), generating 3,290 connections. While each of the actors, datasets, and databases are individual in the network map, they represent the members of different communities and datasets stored under unique logins or facility rooms. Each connection representing a different piece of information being accessed, shared, and received. On average, and with no major outliers identified, each respondent indicated accessing, sharing, or receiving 55 pieces of information from different elements. This is a vibrant and engaged data ecosystem.

Figure 9: All Dataflow Connections from Respondents



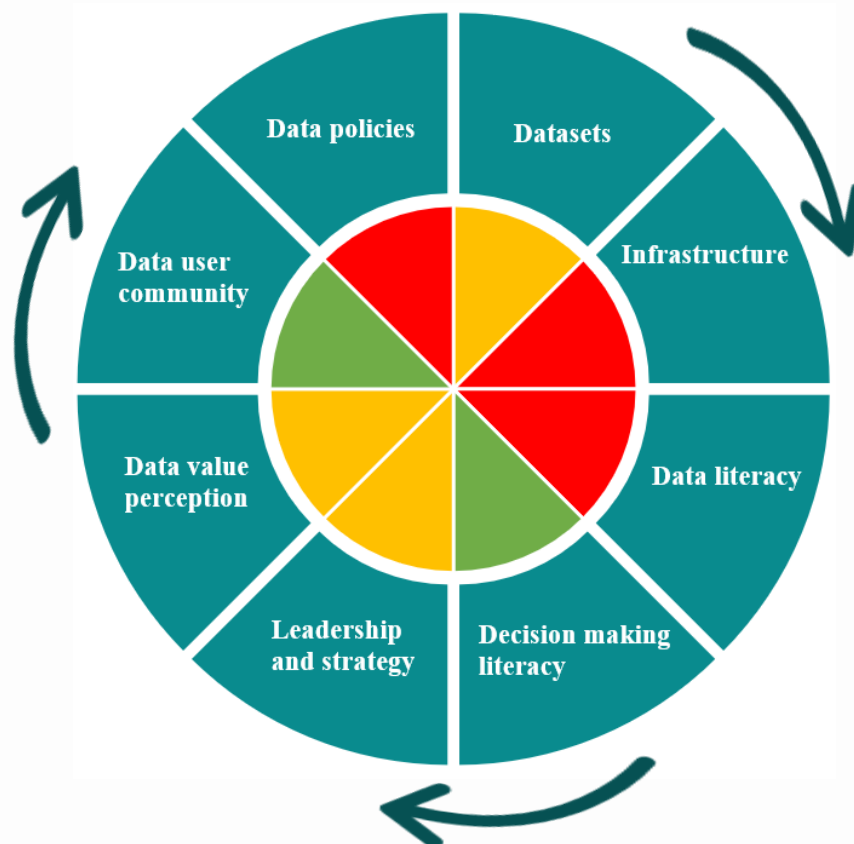
Comprehensive Dimension and Ideal State Evaluation



Ideals States guide the data collection and evaluation process of the Data Compass tool, and the balanced consideration of insights identified within each of those Ideal States inform the comprehensive evaluation of their respective Dimension. While the Dimension status guides the areas of focus for the action plan, this comprehensive breakdown of each Ideal State informs the more specific strengths and weaknesses that were identified across health facilities.

This section shares the comprehensive findings of each Dimension and respective Ideal States with expanded details. The order of this section will start with the Dataset Dimension and move clockwise as indicated in figure 10. This order does not reflect any priority between Dimensions.

Figure 10: Order of section by Dimensions



Datasets - Content, quality, inclusivity, relevance, reliability, etc.

Unfavorable condition, but no evidence of significant obstacles

Facilities are asked to collect and report an overwhelming volume of data without adequate resources and technical capacity to manage it efficiently. This challenge makes the data entry process burdensome and unreliable, particularly at the dispensary level. Each facility faces unique challenges in how and when they can enter data into a consolidated system like DHIS2 and GOTHOMIS, but hard copies of monthly MTUHA reports are the most reliable dataset available. This can cause significant challenges in sharing data, identifying issues, and improving processes. At the dispensary level there is understanding about what is needed for reporting purposes, but the data reported is likely unreliable due to the extended burden and duplicate data entry process. Below are some additional insights to consider:

- The volume of data required to collect is extremely burdensome without reliable ICTs and facility electricity. There is a dependence to enter data in analogue form when collecting it and then translating it digitally. This becomes particularly challenging when electricity is out for extended periods of time and staff need to enter a large volume at once.
- Routine discussions about data collection and analysis processes at the district hospital and health center level exist, the limited staff and delayed data entry periods at the dispensary level make it challenging for staff to learn from the data collected routinely and improve processes.

Datasets Ideal States	Score	Details
Datasets that support servicing and financial information for the PlanRep and FFARS systems exist in analog or digital format.	Favorable conditions	They exist at every facility.
Relevant datasets are inventoried on a regular (systematic) basis.	Favorable conditions	Data is routinely updated.
There is shared knowledge among facility staff on where to search for and access relevant servicing and financial datasets when needed.	Favorable conditions	There is shared knowledge of where resources exist.
There is a standardized format between datasets for consistent categories that enables longitudinal and cross-dataset comparisons (e.g. common schema for addresses).	Unfavorable condition, but no evidence of significant obstacles	There is a standard format, but double data entry process raise concern for errors
Datasets are of good enough quality (e.g. cleanliness, resolution, credibility, update frequency, representativeness) to inform PlanRep and FFARS system inputs.	Unfavorable condition, but no evidence of significant obstacles	Inconsistency in data entry.
There are processes in place to audit and improve the quality of datasets, including gender audits.	Evidence of significant obstacles	CHMT conduct quality assurance audit, but inaccurate changes to datasets were noted.
Datasets are accompanied with useful trustworthy metadata (their owner, frequency of updates, source, etc.).	Unfavorable condition, but no evidence of significant obstacles	Duplicate data entry at the facility level and CHMT raise concerns of trust.
Biases in the data collection and analysis processes of datasets are known, and practices to mitigate them are in place	Evidence of significant obstacles	Staff have limited understanding of bias that exist in data collection analysis.
When data from complementing datasets does not align, there is a process in place for reconciling competing information.	Unfavorable condition, but no evidence of significant obstacles	No standard process exists with supporting datasets, but interoperable systems like PlanRep and FFARS mitigate some concern.
Methods for data collection are consistent and leverage appropriate modern tools and techniques.	Unfavorable condition, but no evidence of significant obstacles	Data collection process is consistent, but they do not have modern tools.

Infrastructure - Systems in place to sustain and facilitate use of data.

Evidence of significant obstacles

A lack of access for many facilities to directly access database systems like PlanRep, GOTHOMIS, and DHIS2 as well as severely limited facility resources pose a significant challenge for facility staff to consistently collect, manage, and share data autonomously.

While some of the challenges are not as significant at the district hospital, dispensaries and health centers are dependent on support from their respective District Council offices for certain data entry requirements and resources. Some facilities face significant challenges with access to electricity and water, resulting in less ability to collect and manage their data consistently. Below are some additional insights to consider:

- Most facilities indicated only having one or two computers available and most without the support software like GOTHOMIS or DHS2 installed. This causes a dependence with district council offices to enter MTUHA data and other hard copies of datasets in the systems when available.
- Dispensary staff has noted that electricity can go down for extended periods or their computers are broken, causing them to use their mobile phones to enter budget/funds expenditure requests.
- Dispensaries usually only have 2-3 staff and are burdened entering data twice, collecting data first in analog form and then translating it digitally. This stretches an already limited staff with an extra step if they can enter data directly into digital form.
- Inability for dispensaries to access PlanRep directly causes a dependency on CHMT to enter the information and has raised concerns over inaccuracies.
- The District Hospital noted that there is a shortage of computers for the volume of data they are being required to collect. This causes a backlog in data entry and increases the potential for errors. As a result, they have had to borrow computers from other facilities to keep up with the incoming reports.

Infrastructure Ideal States	Score	Details
Infrastructure exists to store and use servicing and financial data to the PlanRep and FFARS systems.	Unfavorable condition, but no evidence of significant obstacles	Systems exist but they are not always easily accessible to use.
The way datasets are stored makes them accessible to different authorized users when needed.	Unfavorable condition, but no evidence of significant obstacles	Not easily accessible for some facilities with poor electricity.
Infrastructure to store datasets is interoperable (within the organization).	Evidence of significant obstacles	GOTHOMIS and DHIS2 are not – dependent on DC.
Infrastructure to store datasets is aligned and interoperable with other systems (outside the organization).	Evidence of significant obstacles	GOTHOMIS and DHIS2 are not – dependent on DC.
[Software] Systems allow non-sophisticated users to access data.	Evidence of significant obstacles	Many dispensary staff are not trained to use the required systems.
[Software] Systems support statistical analysis and can produce graphical displays of data.	Evidence of significant obstacles	Many computers do not have required software to analyze data.
There is enough staff and technology to ensure data is securely stored and shared.	Evidence of significant obstacles	None or inaccessible computers are available to many dispensary staff.

Data literacy - Skills to access, manipulate, and share data.

Evidence of significant obstacles

All facilities indicated staff have a limited capacity in data literacy. Some training exists and staff have consistent data collection practices, but they do not have the skills to properly analyze or understand reports to learn or improve processes. Additionally, many staff at the dispensary level are not adequately trained to enter data into GOTHOMIS or DHIS2.

Data literacy Ideal States	Score	Details
Skills exist for staff to <i>access</i> (find or obtain) servicing and financial data from different sources and systems (both within and outside of an organization) to inform input into FFARS and PlanRep systems.	Unfavorable condition, but no evidence of significant obstacles	There is understanding of what is needed for reporting, but not always reliable access.
Skills exist to <i>manipulate</i> (clean, analyze, or visualize) data to surface findings.	Evidence of significant obstacles	Limited staff training.
Skills exist to <i>share</i> data to internal and external audiences including non-data users when relevant.	Favorable conditions	Active dialogue with external audiences.
Skills exist to identify bias in datasets to ensure its inclusivity when relevant.	Evidence of significant obstacles	Limited staff training.
Skills exist to implement data protection, privacy, and security practices (such as anonymizing personally identifying information).	Evidence of significant obstacles	Limited staff training.
Specific data literacy skills (collection, analysis, etc.) are included in job announcements or descriptions.	Unfavorable condition, but no evidence of significant obstacles	Sometimes, but skills are not developed.
Skills exist to enable a gender-aware approach to manage and communicate about datasets.	Evidence of significant obstacles	Limited staff training.

Decision making literacy - Skills to translate data into meaningful and ethical decisions.

Favorable conditions

Because of the clear priorities laid out in the planning process, there is consistency in how facilities approach decision making for budgeting/funding requests and a vibrant dialogue with multiple stakeholders to inform those decisions. While additional data literacy skills would enhance these processes, the structure and steps that currently exist is favorable. Below are some additional insights to consider:

- Health quality improvement team and Health Facility Governing Committee (HFGC), which includes citizen representatives, review data and community issues together and identify planning purposes each year.
- Summary reports inform committee and district council discussions. The district Council Health Management Team (CHMT) is required to enter the information into the system, but the decisions are made by HFGC.
- The FFARS/PlanRep/ILS systems have made facility heads more adaptable to make decision for procurement of medicines and medical supplies that hold them accountable to the decisions outlined in the planning processes.

Decision making literacy Ideal States	Score	Details
Data is frequently part of regular decision-making processes.	Favorable conditions	Every quarter and annually for planning.
There is a structured process in place to incorporate data into decision-making processes.	Favorable conditions	Clear structure.
Skills exist for recognizing what data is relevant to inform PlanRep and FFARS systems.	Favorable conditions	Clear process for what is needed for those systems.
Skills exist to draw meaningful conclusions and interpretations from datasets and visualizations.	Evidence of significant obstacles	Limited staff training.
Skills exist to evaluate the sufficiency and quality of data.	Evidence of significant obstacles	Limited staff training.
Skills exist to make inclusive decisions based on evidence presented through data.	Evidence of significant obstacles	Limited staff training.

Leadership and strategic priorities - Signals and actions from leaders to foster data use.

Unfavorable condition, but no evidence of significant obstacles

DHFF has fostered a more autonomous and collaborative structure for lower level facilities that presents a positive opportunity to improve systems and use data more actively to inform decisions, but poor data literacy skills among facility staff is holding them back. As a result, facility leadership on data usage is limited to reporting purposes without a process of learning and improving systems. Below are some additional insights to consider:

- Community health workers (1-2 per village) collect data on local issues monthly and shares it with facility staff, but there is no learning procedures or meetings at the dispensary level to identify insights or improve these processes.
- The PlanRep system is not set up easily to organize the annual budget based on facility priorities and requires support from the district council to update. A more relevant user-guide for how to use PlanRep and other systems is significantly desired by dispensary staff.
- All dispensaries indicated a strong need for a well-trained Data Manager to support their process. This emphasizes the poor data literacy skills facility staff need and the stretched capacity of facility heads to manage too many components without adequate training.

Leadership and strategic priorities Ideal States	Score	Details
Facility leaders have formally set the expectation that staff are expected to incorporate data-driven insights into their update of the FFARS and PlanRep systems.	Favorable conditions	Clearly outlined in the planning processes and discussions.
Datasets are used by facility leaders to inform strategic priorities (e.g. plans, performance indicators, budgets).	Unfavorable condition, but no evidence of significant obstacles	Yes, but inconsistent capacity by facility leaders.
There are learning procedures in place that ensure data is being used to guide institutional improvement at the facility level.	Evidence of significant obstacles	Does not exist at the dispensary level.
A specific position(s) is responsible for managing datasets (e.g. CIO).	Unfavorable condition, but no evidence of significant obstacles	Usually falls to the facility in charge person who has many responsibilities.
Facility leaders have included specific plans to improve data readiness and use through resource allocation.	Unfavorable condition, but no evidence of significant obstacles	There is a desire from facility leaders, but not institutional support.
Facility leaders use data to assess their organization's strengths and weaknesses when developing strategic plans.	Favorable conditions	Vibrant dialogue between community members and facility staff.

Data value perceptions - Whether data is received and treated as an enabler of decision making and learning.

Unfavorable condition, but no evidence of significant obstacles

Facility staff understand that data is used to drive facility activities and inform priorities, but there is limited understanding and value from most staff in using data to learn and improve processes. This is likely a result of poor data literacy among staff and infrastructure obstacles the keep them from efficiently engaging with data they collect.

Data value perception Ideal States	Score	Details
Staff recognize the importance and relevance of building data literacy skills to their jobs.	Unfavorable condition, but no evidence of	Clear understanding that staff need these skills.
Trust exists in quality datasets that are known to be credible.	Favorable conditions	MTUHA reports are reliable datasets.
Investments into infrastructure to collect, store, and share datasets are prioritized.	Evidence of significant obstacles	Not a priority investment area.
Staff see a clear and visible connection between data, institutional planning, and resource allocation.	Favorable conditions	The planning process makes this very clear.
Gender, age, etc. (note inclusion definition) – disaggregated information is acknowledged as fundamental to quality, usable data.	Unfavorable condition, but no evidence of significant obstacles	It is acknowledged as a value, but limited staff capacity to improve.
Responsibility for data protection is assigned to key staff and they are evaluated on their support of this responsibility.	Unfavorable condition, but no evidence of significant obstacles	Staff have clear understanding to protect private data, but there are inconsistent policies and practices.

Data user community - Engagement with and between actors who might produce or use data.
Favorable conditions

A vibrant dialogue and sharing culture between facilities and their local communities exists and is fostered by the planning processes required by DHFF. One major challenge, however, is the frequency and accuracy of the data being collected and shared. Some facilities indicated the planned budget requests were not adequate for certain initiative activities because of a lack of information and communities would provide in-kind donations to keep the activities supported. This issue is likely an effect of limited staff capacity and infrastructure to collect and manage data accurately indicated in the infrastructure dimension analysis. Despite these challenges facilities have favorable conditions to foster an active data user community. Below are some additional insights to consider:

- Dispensaries indicated sharing information with community leaders every three months. It is the responsibility of the community leaders to disseminate that information to their constituents.
- Facilities consolidate a discussion with community leaders once a year as they identify their local priorities for the PlanRep entry.

Data user community Ideal States	Score	Details
Processes for external and internal actors to request data exist and are utilized.	Favorable conditions	Routine sharing of data exists in planning process.
Requests for datasets, both internally and externally, are responded to constructively and efficiently.	Unfavorable condition, but no evidence of significant obstacles	Significant staff shortages to frequently accommodate.
Requests for datasets are publicly available to enable other actors working on similar issues to utilize that information more effectively.	Favorable conditions	Routine sharing of data exists in planning process.
There is frequent dialog among staff about what information is critical to know.	Favorable conditions	Critical information is known by all staff.
Data-informed decisions are shared with other actors to build trust in the institution and in the data.	Favorable conditions	Routine sharing of data exists in planning process.

Data policies - Process that sustain and facilitate active and ethical data use.

Evidence of significant obstacles

Facilities face serious inconsistencies in the secure storage and access of personally identifiable information (PII). While there was strong sense from facility staff to ensure that PII is not shared with unauthorized officials, specific policies either do not exist or are not known by facility staff. The large volume of hard copies at facility and district council sites without clear storage lengths and disposal policies is a particular concern. Below are some additional insights to consider:

- All hard copies are stored at dispensary for the month, and then everything is summarized, copied, and shared with the district council and store in both places. This increases the risk of PII being accessed by unauthorized personnel.
- No facility staff indicated specific policies that exist which mitigate unauthorized access to PII.

Data policies Ideal States	Score	Details
There is awareness of external data privacy and security regulations (e.g. GDPR).	Evidence of significant obstacles	Limited awareness from staff.
Formal policies, including trainings, exist to enforce privacy and security of personal information in datasets.	Unfavorable condition, but no evidence of significant obstacles	Trainings exist, but policies are still unclear.
Standards and policies exist for data archiving and digital preservation once it has ceased to be used operationally.	Evidence of significant obstacles	Limited awareness from staff.
Standard roles and responsibilities have been assigned for data management.	Unfavorable condition, but no evidence of significant obstacles	Roles have been assigned, but it is too burdensome for staff to do efficiently.
Procedures exist for ensuring that no personally identifiable data are shared with inappropriate personnel or others outside the institution.	Unfavorable condition, but no evidence of significant obstacles	Staff understand keeping personal information secure, but procedures are unclear.
Institutional structures and charts clearly identify positions that have data management responsibilities at each reporting level.	Unfavorable condition, but no evidence of significant obstacles	Roles have been assigned, but it is too burdensome for staff to do efficiently.



Conclusions and Next Steps

This analysis identified major challenges that exist with rural health facilities in Tanzania, but it also revealed significant opportunities for investment in data usage practices to have meaningful impact. The Flow Mapper analysis showcased a vibrant information sharing system between facilities and their community leaders, validating one of the goals from the DHFF program. Interviews and group discussions, however, highlighted major obstacles that exist for many facilities. Unreliable infrastructure including poor electricity and access to water make it challenging for staff to enter and manage data consistently. Limited staff capacity to access standard database systems and draw meaningful insights discourage data usage and learning for improvements. Inconsistent data security policies enhance risk and liability of patient information being accessed by unauthorized personnel. Based on these findings and consultation with facility staff, the below recommendations would be a valued investment for all facilities across the Kyela District.

- **Invest in capacity** building programs for facility staff (at least two for every facility) that actively engage with data. To start, provide resources and training on basic data management practices and how to use required software like PlanRep, FFARS, and GOTHOMIS. Then, provide resources and training on the actionable skills of identifying insights from data collected and how those insights can inform decisions.
- **Develop a user guide** for staff on the “life cycle” of data they will encounter. By providing staff with step-by-step guidance from how they collect data, enter it into a certain system, and then use it to inform discussions and decisions will establish consistency among facility staff’s capacity.
- **Invest in resources** for staff to adequately collect and manage their data. This includes providing every facility with at least two computers with the required systems installed and improving facility infrastructure to have more reliable electricity, water, and internet connection.
- **Establish a data protection policy** for facilities to have consistency in who accesses patient information, how it is stored, and how to dispose of hard and digital copies once it is no longer needed.

Health facilities in Kyela are well positioned to succeed using the DHFF program to improve community participation and autonomy of healthcare service delivery, but they are ill-equipped to improve efficiency and effectiveness for higher quality, local care. Improving the capacities and resources for facilities to enhance their data usage brings more insight to routine discussions, and more efficiently address community needs. Additionally, developing a data culture that fosters continuous learning can identify future challenges and inform systemic improvements, but it demands local buy-in.

The recommendations in this report are high-level and resonate across all facilities, but they do

not address the specific and unique challenges that each facility faces. The Facility Action Plan, the final and most critical component of the Data Compass tool, is the next step to develop clearer improvements for each facility and foster local buy-in to enhance data usage in their operations. Reliable infrastructure, enhanced technical capacity for facility staff, and consistent data security policies are all vital to achieving the goal of the DHFF program and will be discussed in these Facility Action Plans, but each facility needs to approach addressing those improvements based on their own capacities and priorities.

This report highlights how policy and procedure improvements need to be accompanied with capacity and infrastructure improvements to achieve their intended goals when working with sub-national institutions. DHFF positively structured institutional processes for rural facilities to be more autonomous and address community needs, but the lack of capacity development and infrastructure improvements to accompany this decentralization pose significant challenges. Investments should be made in both these spaces for the DHFF program to achieve its desired goal - improve community participation and autonomy, efficiency, and effectiveness of available resources and ultimately improve the quality of care at the local level.

Annex A:

Expanded Methodology



This expanded methodology outlines important contextual details about health facilities in Kyela, how IREX adapted data collection tools used to inform the findings in this report, and key biases and limitations to consider from the overall process.

Stakeholder and system mapping

In total, there are 31 health facilities in Kyela consisting of one district hospital (staff of 50+), one health center (staff of 10-15) and 29 dispensaries (staff of 2-5 each) that follow the same planning, financial reporting and service delivery procedures. Based on the theory of change framework from the DHFF program's implementation, the following were key effects and outcomes envisioned:

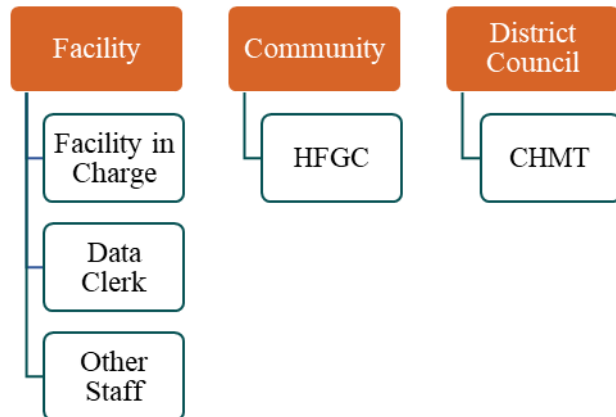
- Increase autonomy for each facility over resource allocation.
- Invest in facility infrastructure and supplies.
- Increase engagement with community to be more responsive to local needs.
- Improve the quality of local healthcare services.

To achieve these outcomes, a variety of actors, datasets, and systems engage with each other to inform inputs and make decisions. While this report will not dive into the specific procedures of DHFF, it is important to understand each of the components that make up this data eco-system. Actors, or stakeholders, include all the people or institutions that engage within the system, sharing information and making decisions. Datasets indicate the different types of information that is collected, manipulated, analyzed, and shared within the system. Database systems are where data is entered, and datasets are stored. Figures 11 and 12 on the following page provide descriptions of the key actors, datasets, and database systems that compose this specific data ecosystem.

Actors

- **Facility in charge:** Lead administrative official at each facility.
- **Data Clerk:** Data management lead (only at District Hospital and Health Center).
- **Council Health Management Team (CHMT):** District Council representatives that support planning process.
- **Health Facility Governing Committee (HFGC):** Community representatives that work closely with facility staff during the planning processes to structure facility priorities to meet local needs.
- **Other facility staff:** Doctors, nurses and other facility staff

Figure 11: Actors by institution

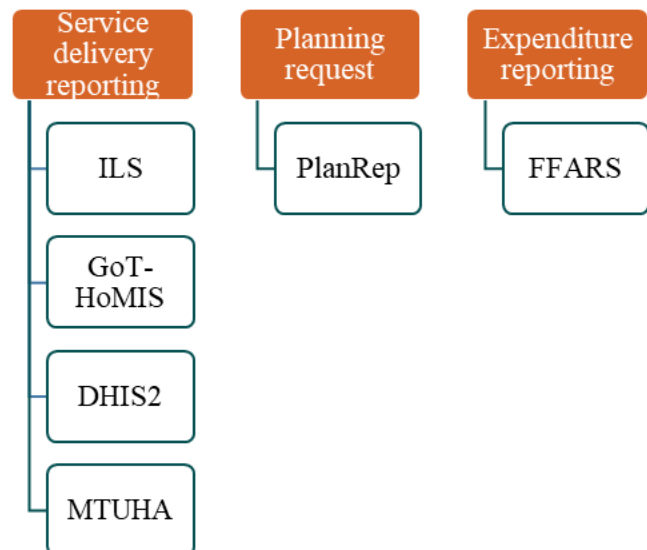


Datasets

- **Expenditure reporting:** Data that informs financial requests input into FFARS.
- **Service delivery reporting:** Data that informs facility service reporting consolidated in the GoT-HoMIS, DHIS2 and ILS systems and MTUHA monthly reports.
- **Planning requests:** Data that informs the planning process inputs into PlanRep.

Figure 12: Datasets

(with respective supporting database systems)



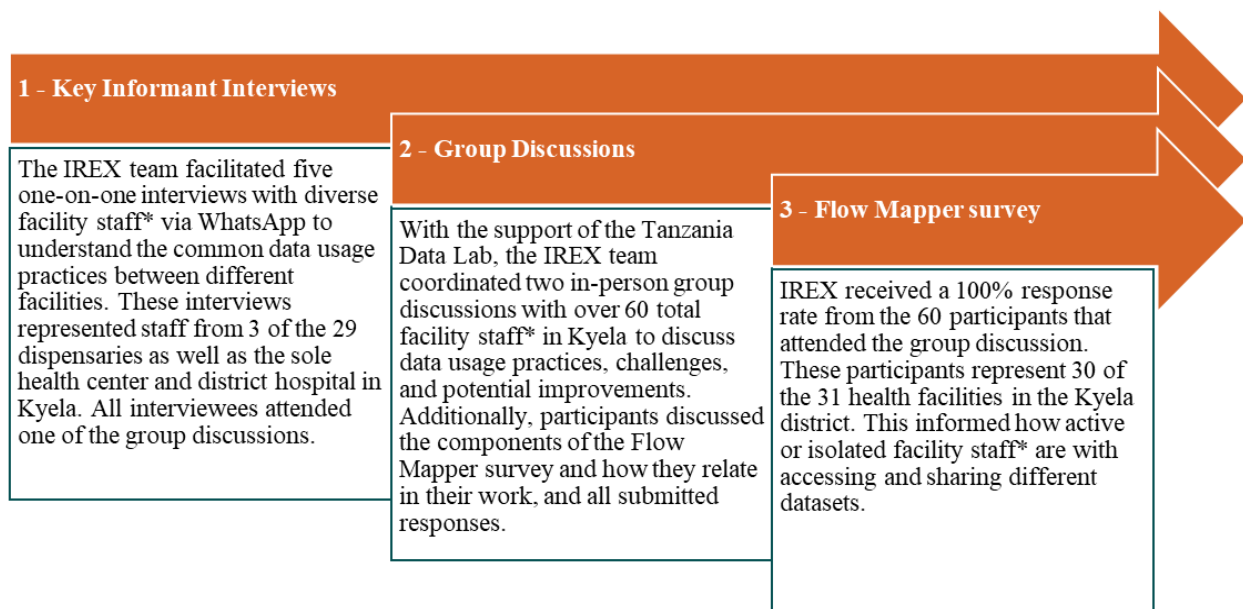
Databases

- **Facility Financial Accounting and Reporting System (FFARS):** An accounting system connected to PlanRep that facilities submit funding requests based on the activities outlined in the annual plan.
- **PlanRep:** A planning system connected the FFARS that facilities update their planned activities for the year. Funding requests are only approved if they are linked to an activity in PlanRep.
- **Government of Tanzania Hospital Management Information System (GoT-HoMIS):** A database system that is interoperable with DHIS2 and ILS and consolidates patient information to track of health facility services.
- **District Health Information System 2 (DHIS2):** A database system that consolidates service delivery and allows for analysis at different levels of the health system.
- **Integrated Logistic System (ILS):** Pharmaceutical and medical supply request system connected to FFARS and verified once funding is approved.
- **MTUHA Monthly Reports:** Monthly summary of individual MTUHA reports that collect direct patient and service delivery information in hard copies.

Data Collection

To inform the scoring process, data collection activities were conducted by the IREX team in partnership with the Tanzania Data Lab between September and October 2020. The Key Informant Interviews and Group Discussions were facilitated around a comprehensive questionnaire that IREX staff designed to directly inform each Ideal State. These interviews and discussions provide valuable context and understanding of the opportunities and challenges that exist among facilities. The Flow Mapper Survey is an IREX software developed in partnership with [Tehamalab](#), a data science consultancy firm in Tanzania, which has a unique logic function allowing respondents to indicate their dataflow practices - which type of information they engage with and how it is received, accessed, and shared. When responses from this survey are mapped out in a dataflow analysis, it provides valuable insights into the degree of activity that exists within a data eco-system. Each activity occurred in the order indicated in figure 13 to help inform and develop the activity that follows.

Figure 13: Data Collection Activities



* Facility staff included doctors, nurses, and administrators that actively engage in data management processes.

Key Informant Interviews (KII)

One-on-one interviews are the first step in the data collection process and an opportunity to have an in-depth discussion with staff about each of the Dimensions and Ideal States from diverse facilities. This discussion helps flag any areas of concern to follow up on in the group discussion and consider any minor adjustment to the survey tool if new data sources or actors are identified. A total of five staff were interviewed, each representing a different facility (district hospital, health center, and three dispensaries), and each discussion lasted between 90 minutes to two hours. While these interviews were adapted to Whatsapp to accommodate the travel restrictions in place during the month of September 2020, an ideal KII would incorporate an in-person site visit and observation to validate user practices.

Group Discussion

The group discussion is an opportunity to expand major trends or inconsistencies identified in the KII with staff from more facilities. The discussion is based on a narrower focus of the same questions asked in the KII. Additionally, the discussion is a valuable opportunity to collect insights for specific District-wide improvements and recommendations. This discussion was facilitated by the Tanzania Data Lab and IREX's consultant, Dr. Anna Nswilla in October 2020. A total of 60 participants attended one of the two-day discussions and represented 30 out of the 31 total facilities. The discussion was held over two days to accommodate multiple staff from dispensaries that could not leave their facility vacant.

Flow Mapper Survey

The Flow Mapper Survey is a software that uses a unique logic to ask respondents how they share, access, and receive information for the purpose of mapping out a dataflow eco-system. The survey's purpose is to understand the below seven aspects of a dataflow network, each translating to a unique question that the respondent encounters when taking the survey.

1. *What data **topics** are most relevant to respondents.
2. *How often respondents work with specific **datasets** pertaining to those **topics**.
3. *What **actors** are perceived as owners of those datasets.
4. What **databases** those **datasets** are stored in.
5. Access permissions for those **datasets**.
6. **Actors** who respondents share those **datasets** with.
7. **Actors** who respondents receive those **datasets** from.

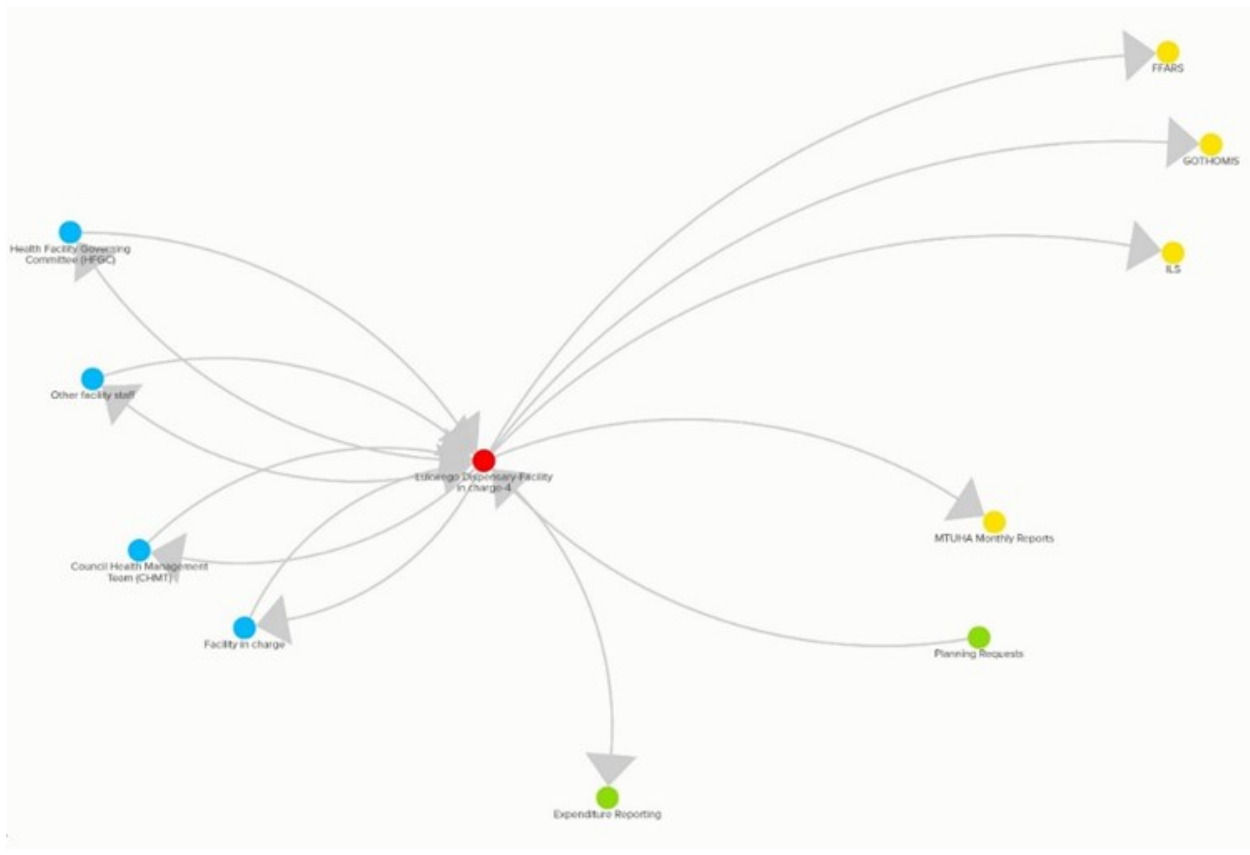
*Components were not translated to the map visualizations. Reference Key biases and limitations for more details.

A dataflow analysis can be conducted by mapping out these elements (Actors, Datasets, Databases, and Topics) and connections onto a network map. The insights identified from conducting a dataflow analysis informs the degree of activity that exists within a data eco-system, in this case the health data eco-system among facilities in the Kyela District. This component of the Data Compass is a valuable tool that can inform Ideal States that consider engagement or access between actors or systems, a key objective of the DHFF program.

Below is an example of how an individual respondent's answers would be translated to a network map for a dataflow analysis with a legend that indicates the color code of each element's category. The connections between these elements indicate the direction in which information is being shared, received, or accessed. When referencing the example below, the following is identified:

- Connections are going from the respondent in red towards several database systems in yellow. This indicates that the respondent accesses these database systems.
- Connections in both directions exist between the respondent in red and other stakeholders in blue. This indicates that there is a mutual sharing of information.
- The respondent in red is receiving a connection from the Planning Request dataset in green on the right but is sending a connection to the Expenditure Reporting in green at the bottom. This indicates that this respondent is using and sharing data from planning processes to inform entries for financial reporting.

Figure 14: Individual Respondent's Dataflow Visualization Example



Legend		
Datasets	Actors	Databases
Expenditure reporting Service delivery reporting Planning requests	Facility in charge Data clerk Other facility staff CHMT HFGC	FFARS PlanRep DHIS2 GoT-HoMIS ILS MTUHA Monthly reports

In total, the IREX team received a 100% response rate from facility staff that participated in the group discussions, resulting in 60 total survey submissions. The survey was shared via url link (bitly.com/KyelaDataCompass) which participants were able to enter on their phones or computers at the Kyela District Hospital, where the group discussions took place. Before the link was shared with participants, facilitators discussed what dataflow is and how it relates to their work to ensure understanding of the survey questions. Participants also received hard copies of guided instructions on how to complete the survey and facilitators provided in-person support as needed.

Key Biases and Limitations

IREX recognizes that there were various internal and external factors that impacted the implementation and findings of this research effort. These biases and limitations are outlined below:

The COVID-19 Pandemic: Due to the COVID-19 pandemic, the IREX team adapted the Data Compass tool to a virtual setting. This limited IREX staff's ability to conduct in-person site visits to validate practices and procedures identified in interviews, group discussions, and the Flow Mapper survey. This limitation adds a strong risk of response bias to the data collection process, particularly acquiescence or desirability bias during interviews where respondents may inaccurately answer with agreement or what they think is socially approved. While in-country travel restrictions were lifted in time to conduct in person group discussions at a central location, the IREX team was unable to coordinate a significant site visit process that would have occurred in tandem with the key informant interviews. While this consideration is significant, the high volume of participation in the group discussion and Flow Mapper survey helps mitigate concern regarding the major findings.

Small Sample of Key Informant Interviews: The five-facility staff engaged in the key informant interviews represent a very small sample of working environments among health staff in Kyela. The group discussion, however, which consisted of staff from 30 out of 31 facilities, helped mitigate some concern for the small sample.

Flow Mapper Survey Aspects: During the group discussion and survey analysis it was identified that the first three aspects of the Flow Mapper survey were not valuable enough to showcase on the map visualization for the following reasons:

- Most respondents indicated working with all three topic areas of data which did not produce any significant insights in the visualization. While this is a limitation in the visual analysis, this validates that all respondents of the survey actively engage with diverse datasets at their respective facilities.
- The frequency of staff working with data on specific topics did not produce any significant insights worth indicating in the visualization.
- Participants indicated having a challenging time identifying who they perceived as “owners” of a dataset (the person who is responsible for managing it), as the questions did not relate well for many facility staff.

Language: The Data Compass was designed in English, so language challenges through the translation process to Swahili should be noted. To mitigate any major concerns, the IREX team worked closely with local consultants and the Tanzania Data Lab to conduct the following during the data collection and analysis processes:

- Translated any questionnaire material into Swahili that was shared with participants ahead of each discussion.
- Ensured a translator was available to co-lead each discussion.
- Developed a Swahili translation converter option for the Flow Mapper Survey and validated translation through testing.

Geographic specificity: Additionally, this report only focused on health facilities in the Kyela District, and the findings should not be expanded to other regions of Tanzania. Health centers have a strong relationship and network within a district and with their respective district hospital. The Kyela District hospital hosts trainings and, at times, share resources with other facilities. If the Data Compass were applied to another district in Tanzania, it may identify different trends based on their unique environment.



Annex B:

Facility Action Plan Template

What this document is:

This worksheet takes the high-level insights and recommendations identified in the comprehensive report and guides facility staff to identify actionable next steps that best fit their unique capacities and environment. Each health facility in the Kyela district should complete this independently and in collaboration with available staff and stakeholders.

How long this will take:

This document is a collaborative exercise that should consist of about 2-3 hours of discussion with respective facility staff, Council Health Management Team (CHMT), and Health Facility Governing Committee (HFGC).

Why this matters:

Identifying actionable next steps is the ultimate purpose of the Data Compass tool, and each facility faces their own unique challenges to implement improvements.

What you should do:

The facility in charge should bring this worksheet to an annual strategic planning meeting with relevant facility staff, CHMT and HFGC members, and commit at least two hours of discussion to complete. The discussion aims to answer the following questions:

- What data usage challenges are the highest priority for your facility to address?
- What resources or activities would improve the state of data usage at your facility?
- What goals would help prioritize and focus the major challenges your facility faces with data usage?

What to expect:

Below is a high-level outline of the Facility Action Plan to inform how you may want to organize your discussion:

- Select 3-5 Data Compass Dimensions to focus the discussion
- You must select the three dimensions that were indicated in the report as having significant obstacles (Infrastructure, Data literacy, Data policy).
- Identify priority ideal states to address for each dimension.
- Discuss challenges that exist and potential improvements.
- Develop goals that foster improved data usage practices for each dimension discussed.
- Identify activities to conduct and dates to evaluate success.
- Consolidate actionable goals and activities into a comprehensive Action Plan.

Tips:

- The facility in charge, or whoever facilitates the discussion, should review the comprehensive report, and consider some of the high-level recommendations identified across all facilities.
- Have this discussion during an annual strategic planning process.
- When developing goals, reference the SMART criteria shared at the bottom of each respective page.

Facility Action Plan

Health facility: _____

Facility in charge: _____ Date: _____

Discussion attendees*

Name	Role (facility title, CHMT, HFGC, etc.)

*For more attendees attach additional sheet

Dimensions of focus:

Action plan items will be identified for each of the selected dimensions below. The three dimensions already selected were identified as having significant obstacles from the comprehensive report.

Optional - select no more than 2 additional dimensions to discuss based on your facility's challenges and strategic priorities

Datasets	Infrastructure	Data literacy	Decision-making literacy
Content, quality, inclusivity, relevance, reliability, etc.	Systems in place to sustain and facilitate use of data.	Skills to access, manipulate, and share data.	Skills to translate data into meaningful and ethical decisions.
	X	X	
Leadership and strategy	Data value perception	Data-user community	Data policies
Signals and actions from leaders to foster data use.	Whether data is received and treated as an enabler of decision making and learning.	Engagement with and between actors who might produce or use data.	Process that sustain and facilitate active and ethical data use.
			X

Infrastructure

Step 1: Select two ideal states that are the biggest priority for your facility.

Ideal state	Select two with "X"
1- Infrastructure exists to store and use servicing and financial data to the PlanRep and FFARS systems.	
2- The way datasets are stored makes them accessible to different authorized users when needed.	
3- Infrastructure to store datasets is interoperable (within the organization).	
4- Infrastructure to store datasets is aligned and interoperable with other systems (outside the organization).	
5- [Software] Systems allow non-sophisticated users to access data.	
6- [Software] Systems support statistical analysis and can produce graphical displays of data.	
7- There is enough staff and technology to ensure data is securely stored and shared.	

Step 2: Please answer the following questions for each of your selected ideal states.

Ideal state # _____

What challenges does your facility currently face related to achieving this ideal state?

What activities/resources would improve your facilities current state?

If improvements were made, how would you evaluate achieving the ideal state?

Ideal state # _____

What challenges does your facility currently face related to achieving this ideal state?

What activities/resources would improve your facilities current state?

If improvements were made, how would you evaluate achieving the ideal state?

Step 3: Please create at least one goal to achieve improvements related to one or both the selected ideals states **within the next year**. Please list activities associated with achieving that goal and the date you anticipate evaluating its success. Reference the challenges, potential improvements, and evaluation criteria identified on the previous page to inform the goal(s) you think are reasonable for your facility to achieve.

Goal:

Activity (how and when will you achieve this goal?):

Goal 2 (optional):

Activity (how and when will you achieve this goal?):

Tips for developing an actionable goal:

Developing goals that are Specific, Measurable, Achievable, Relevant, and Time-bound (SMART) produce more actionable improvements to systems. When developing a goal, ensure each of the below criteria is met:

Specific: Does this goal present a clear objective?

Measurable: Will you be able to evaluate meeting this goal?

Achievable: Is this goal reasonable to achieve for your facility?

Relevant: Is this goal relevant to the dimension discussed?

Time-bound: Is there a time length associated with achieving this goal? (No longer than one year)

Data literacy

Step 1: Select two ideal states that are the biggest priority for your facility.

Ideal state	Select two with "X"
1- Skills exist for staff to <i>access</i> (find or obtain) servicing and financial data from different sources and systems (both within and outside of an organization) to inform input into FFARS and PlanRep systems.	
2- Skills exist to <i>manipulate</i> (clean, analyze, or visualize) data to surface findings.	
3- Skills exist to <i>share</i> data to internal and external audiences including non-data users when relevant.	
4- Skills exist to identify bias in datasets to ensure its inclusivity when relevant.	
5- Skills exist to implement data protection, privacy, and security practices (such as anonymizing personally identifying information).	
6- Specific data literacy skills (collection, analysis, etc.) are included in job announcements or descriptions.	
7- Skills exist to enable a gender-aware approach to manage and communicate about datasets	

Step 2: Please answer the following questions for each of your selected ideal states.

Ideal state # _____

What challenges does your facility currently face related to achieving this ideal state?

What activities/resources would improve your facilities current state?

If improvements were made, how would you evaluate achieving the ideal state?

Ideal state # _____

What challenges does your facility currently face related to achieving this ideal state?

What activities/resources would improve your facilities current state?

If improvements were made, how would you evaluate achieving the ideal state?

Step 3: Please create at least one goal to achieve improvements related to one or both the selected ideals states **within the next year**. Please list activities associated with achieving that goal and the date you anticipate evaluating its success. Reference the challenges, potential improvements, and evaluation criteria identified on the previous page to inform the goal(s) you think are reasonable for your facility to achieve.

Goal:

Activity (how and when will you achieve this goal?):

Goal 2 (optional):

Activity (how and when will you achieve this goal?):

Tips for developing an actionable goal:

Developing goals that are Specific, Measurable, Achievable, Relevant, and Time-bound (SMART) produce more actionable improvements to systems. When developing a goal, ensure each of the below criteria is met:

Specific: Does this goal present a clear objective?

Measurable: Will you be able to evaluate meeting this goal?

Achievable: Is this goal reasonable to achieve for your facility?

Relevant: Is this goal relevant to the dimension discussed?

Time-bound: Is there a time length associated with achieving this goal? (No longer than one year)

Data policies

Step 1: Select two ideal states that are the biggest priority for your facility.

Ideal state	Select two with "X"
1- There is awareness of external data privacy and security regulations (e.g. GDPR).	
2- Formal policies, including trainings, exist to enforce privacy and security of personal information in datasets.	
3- Standards and policies exist for data archiving and digital preservation once it has ceased to be used operationally.	
4- Standard roles and responsibilities have been assigned for data management.	
5- Procedures exist for ensuring that no personally identifiable data are shared with inappropriate personnel or others outside the institution.	
6- Institutional structures and charts clearly identify positions that have data management responsibilities at each reporting level.	

Step 2: Please answer the following questions for each of your selected ideal states.

Ideal state # _____

What challenges does your facility currently face related to achieving this ideal state?

What activities/resources would improve your facilities current state?

If improvements were made, how would you evaluate achieving the ideal state?

Ideal state # _____

What challenges does your facility currently face related to achieving this ideal state?

What activities/resources would improve your facilities current state?

If improvements were made, how would you evaluate achieving the ideal state?

Step 3: Please create at least one goal to achieve improvements related to one or both the selected ideals states **within the next year**. Please list activities associated with achieving that goal and the date you anticipate evaluating its success. Reference the challenges, potential improvements, and evaluation criteria identified on the previous page to inform the goal(s) you think are reasonable for your facility to achieve.

Goal:

Activity (how and when will you achieve this goal?):

Goal 2 (optional):

Activity (how and when will you achieve this goal?):

Tips for developing an actionable goal:

Developing goals that are Specific, Measurable, Achievable, Relevant, and Time-bound (SMART) produce more actionable improvements to systems. When developing a goal, ensure each of the below criteria is met:

Specific: Does this goal present a clear objective?

Measurable: Will you be able to evaluate meeting this goal?

Achievable: Is this goal reasonable to achieve for your facility?

Relevant: Is this goal relevant to the dimension discussed?

Time-bound: Is there a time length associated with achieving this goal? (No longer than one year)

Facility Action Plan - Consolidated

Please share the goals and relevant activities identified for each dimension discussed. If multiple goals were identified for one dimension, please repeat the dimension on the following row to separate the goals and activities.

Dimension		Improvement	Date of completion
1)	Goal		
	Activity		
2)	Goal		
	Activity		
3)	Goal		
	Activity		
4)	Goal		
	Activity		
5)	Goal		
	Activity		



Annex C:

Interview and Discussion Questionnaire

What this document is:

This worksheet structures the principle and follow up questions to discuss during key informant interviews (KII) and group discussions. Each principle question is intended to start the conversation about the overall dimension and each follow up questions is intended to inform a specific Ideal State.

How long this will take:

Each KII is expected to take between 1-2 hours and group discussions expand to 3-4 hours.

Why this matters:

The KIIs and group discussions are the most valuable component of the Data Compass to understand the contextual challenges and opportunities that exist across facilities. Because the Data Compass is a broad and versatile tool, keeping your interviews targeted and focused with specific questions is essential. This worksheet helps focus the conversation about the relevant areas of data usage for this research.

Before the interviews/discussion: Share an English and translated copy of the principle questions for each dimension with participants to reflect in advance and follow along during the discussion.

During the interview/discussion: Ensure at least two facilitators are present to lead the discussion with the participant and take notes.

Datasets

Principle Questions:

- Please list the primary datasets your facility uses to inform what to input into the FFARS and PlanRep systems.
- Please describe the data collection and management processes of each dataset, as well as their overall reliability in quality to inform funding requests.

Datasets Ideal States	Follow-up Questions
Datasets that support servicing and financial information for the PlanRep and FFARS systems exist in analog or digital format.	Does your facility collect and store data that inform the PlanRep and FFARS systems? If so, how does your facility collect service delivery data to inform budget planning?
Relevant datasets are inventoried on a regular (systematic) basis.	Are datasets routinely managed and updated before funding requests?
There is shared knowledge among facility staff on where to search for and access relevant servicing	Is there shared knowledge among authorized facility staff on where to find and access datasets?
There is a standardized format between datasets for consistent categories that enables longitudinal and cross-dataset comparisons (e.g. common schema for addresses).	Is there a consistent data-entry format for common categories (i.e. date, location, service type, etc.) between datasets for comparison?
Datasets are of good enough quality (e.g. cleanliness, resolution, credibility, update frequency, representativeness) to inform PlanRep and FFARS system inputs.	Are most datasets reliable in quality to inform funding requests?
There are processes in place to audit and improve the quality of datasets, including gender audits.	Are there any learning processes in place to evaluate and improve the quality of datasets?
Datasets are accompanied with useful trustworthy metadata (their owner, frequency of updates, source, etc).	Is clear metadata information available with important datasets? (manager, source, last updated, etc.)
Biases in the data collection and analysis processes of datasets are known, and practices to mitigate	Biases exist in all data collection and analysis processes. Are there any practices your facility staff incorpo-
When data from complementing datasets does not align, there is a process in place for reconciling	How are inconsistencies between datasets validated? Is there a protocol in place to identify the error?
Methods for data collection are consistent and leverage appropriate modern tools and techniques.	How do facility staff collect data for each dataset?

Infrastructure

Principle Questions:

- Please explain what systems and resources your facility uses to collect, store, analyze and share servicing and financial data. Who has access to each of these systems?
- How well connected (interoperable) are these systems together?

Infrastructure Ideal States	Follow-up Questions
Infrastructure exists to store and use servicing and financial data to up the PlanRep and FFARS sys-	Does your facility have the infrastructure required to store and use data to inform PlanRep and FFARS up-
The way datasets are stored makes them accessible to different authorized users when needed.	Are datasets accessible to multiple authorized users?
Infrastructure to store datasets is interoperable (within the organization).	Are the systems to store datasets compatible for sharing or connecting within your facility?
Infrastructure to store datasets is aligned and interoperable with other systems (outside the organi-	Are the systems to store datasets compatible for sharing or connecting outside your facility?
[Software] Systems allow non-sophisticated users to access data.	Is the computer software at your facility easy to access/user-friendly?
[Software] Systems support statistical analysis and can produce graphical displays of data.	Does the computer software at your facility support statistical analysis and visualizations of data?
There is enough staff and technology to ensure data is securely stored and shared.	Is there enough authorized staff and technology to ensure data is securely stored and shared?

Data literacy

Principle Question:

- How confident are you to work with data and come up with meaningful insights? If possible, please provide some examples of how you have worked with data in the past.

Data literacy Ideal States	Follow-up Questions
Skills exist for staff to <i>access</i> (find or obtain) servicing and financial data from different sources and systems (both within and outside of an organization) to inform input into FFARS and PlanRep systems.	Do staff have the skills to find and access data from different sources and systems (both within and outside of an organization) to inform what is input into FFARS and PlanRep systems?
Skills exist to <i>manipulate</i> (clean, analyze, or visualize) data to surface findings.	Do staff have the skills to clean, analyze and visualize data to identify findings?
Skills exist to <i>share</i> data to internal and external audiences including non-data users when relevant.	Do staff have the skills to share and communicate data efficiently to internal and external audiences?
Skills exist to identify bias in datasets to ensure its inclusivity when relevant.	Do staff have the skills to identify bias in data collection or analysis process?
Skills exist to implement data protection, privacy, and security practices (such as anonymizing per-	Do staff have the skills to consistently implement data protection and security practices?
Specific data literacy skills (collection, analysis, etc.) are included in job announcements or de-	Are specific data literacy skills (collection, analysis, etc.) included in job announcements and descriptions?
Skills exist to enable a gender-aware approach to manage and communicate about datasets	Are staff aware of gender and inclusion practices and apply these skills when managing and communicating

Decision making literacy

Principle Question:

- Please explain the decision-making process for updating the PlanRep and FFARS systems, and provide an example of how data has been used to inform those decisions.

Decision making literacy Ideal States	Follow-up Questions
Data is frequently part of regular decision-making processes.	Is data frequently incorporated into you facility's decision-making processes?
There is a structured process in place to incorporate data into decision-making processes.	Is there a structured process to incorporate data in your facility's decision-making process?
Skills exist for recognizing what data is relevant to inform PlanRep and FFARS systems.	Do staff have the skills to identify what data is relevant to inform updates to the FFARS and PlanRep systems?
Skills exist to draw meaningful conclusions and interpretations from datasets and visualizations.	Do staff have the skills to draw meaningful conclusions from datasets and visualizations to inform their updates to FFARS and PlanRep systems?
Skills exist to evaluate the sufficiency and quality of data.	Do staff have the skills to evaluate the quality of data they receive to inform their decisions?
Skills exist to make inclusive decisions based on evidence presented through data.	Do staff have the skills to consider inclusive perspectives while making data-informed decisions?

Leadership and strategic priorities

Principle Question:

- Please describe how facility leadership incorporate data informed decisions into the service and financial planning process.
- What protocols and positions are in place to improve the facilities data readiness?

Leadership and strategic priorities Ideal States	Follow-up Questions
Facility leaders have formally set the expectation that staff are expected to incorporate data-driven insights into their update of the FFARS and PlanRep systems.	Are there formal expectations to incorporate data-informed insights into the update process for FFARS and PlanRep systems?
Datasets are used by facility leaders to inform strategic priorities (e.g. plans, performance indicators, budgets).	Do datasets inform strategic priorities outlined in the PlanRep system?
There are learning procedures in place that ensure data is being used to guide institutional improvement at the facility level.	Are there any learning procedures in place that ensure data is being used guide improvements?
A specific position(s) is responsible for managing datasets (e.g. CIO).	Is there a clear position(s) accountable for managing datasets?
Facility leaders have included specific plans to improve data readiness and use through resource allocation.	Is improving data readiness and use in decision making incorporated into your facility's strategic planning?
Facility leaders use data to assess their organization's strengths and weaknesses when developing strategic plans.	Is data used to assess your facility's strengths and weaknesses and inform strategic planning?

Data value and perceptions

Principle Question:

- Please explain the degree to which your facility prioritizes the use of data in their operations and planning. Do facility staff see data as a tool or a burden?

Data value and perceptions Ideal States	Follow-up Questions
Staff recognize the importance and relevance of building data literacy skills to their jobs.	Do facility staff see a value in their work being enhanced by building data literacy skills?
Trust exists in quality datasets that are known to be credible.	Do staff generally trust the quality of datasets they receive to inform updating the FFARS and PlanRep systems?
Investments into infrastructure to collect, store, and share datasets are prioritized.	Do facilities including funding in their budget to improve infrastructure to collect, store and share datasets?
Staff see a clear and visible connection between data, institutional planning, and resource allocation.	Do staff see a clear connection between data and the institutional planning/funding associated in the FFARS
Gender, age, etc. (note inclusion definition) – disaggregated information is acknowledged as fundamental.	Do staff see a value in gender and other demographics being disaggregated to inform data decisions?
Responsibility for data protection is assigned to key staff and they are evaluated on their support	Are certain staff responsible for the protection of datasets at the facility?

Data user community

Principle Question:

- What types of requests do you receive from internal and external community actors with regards to planning and resource allocation?
- How do you manage those requests?

Data user community Ideal States	Follow-up Questions
Processes for external and internal actors to request data exist and are utilized.	Are there clear processes in place for sharing datasets with external and internal officials?
Requests for datasets, both internally and externally, are responded to constructively and efficiently.	Are facility staff able to efficiently respond to requests for dataset? Both internally and externally.
Requests for datasets are publicly available to enable other actors working on similar issues to utilize.	Are relevant financial and planning datasets made publicly available?
There is frequent dialog among staff about what information is critical to know.	Do staff understand what information is critical for financial and planning purposes?
Data-informed decisions are shared with other actors to build trust in the institution and in the data.	Are facility planning decisions communicated with external stakeholders in the community?

Dimension 8: Data policies

Principle Question:

- Please explain the policies and procedures in place at your facility to ensure data is securely managed and secured.

Ideal states	Follow-up Questions
There is awareness of external data privacy and security regulations (e.g. GDPR).	Are staff aware of external data privacy and security regulations or expectations like GDPR?
Formal policies, including trainings, exist to enforce privacy and security of personal information in datasets.	Are there any formal trainings on how to enforce data privacy and security for personally identifiable information?
Standards and policies exist for data archiving and digital preservation once it has ceased to be used operationally.	What policies at your facility exist for archiving old datasets?
Standard roles and responsibilities have been assigned for data management.	Are there any formal roles indicated to staff at your facility for data management?
Procedures exist for ensuring that no personally identifiable data are shared with inappropriate personnel or others outside the institution.	Are there any policies or procedure that exist which ensure proper redaction of personally identifiable information when sharing outside of your facility?
Institutional structures and charts clearly identify positions that have data management responsibilities at each reporting level.	Are there any formal institutional structures that clearly indicate which staff is responsibility for data management at each reporting level?



Annex D:

Flow Mapper Survey User Instructions

What this document is:

This document provides guided instructions for participants to complete the Flow Mapper Survey. This is intended to be provided during the group discussions to mitigate technical questions.

How long this will take:

Most surveys should take between 10-15 minutes to complete with strong internet connection.

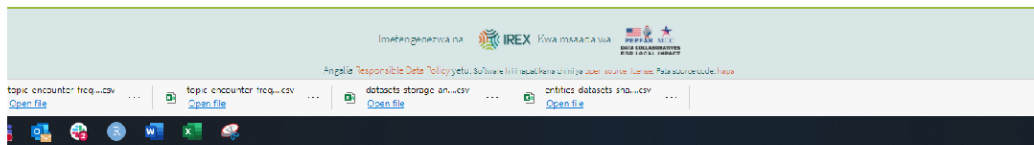
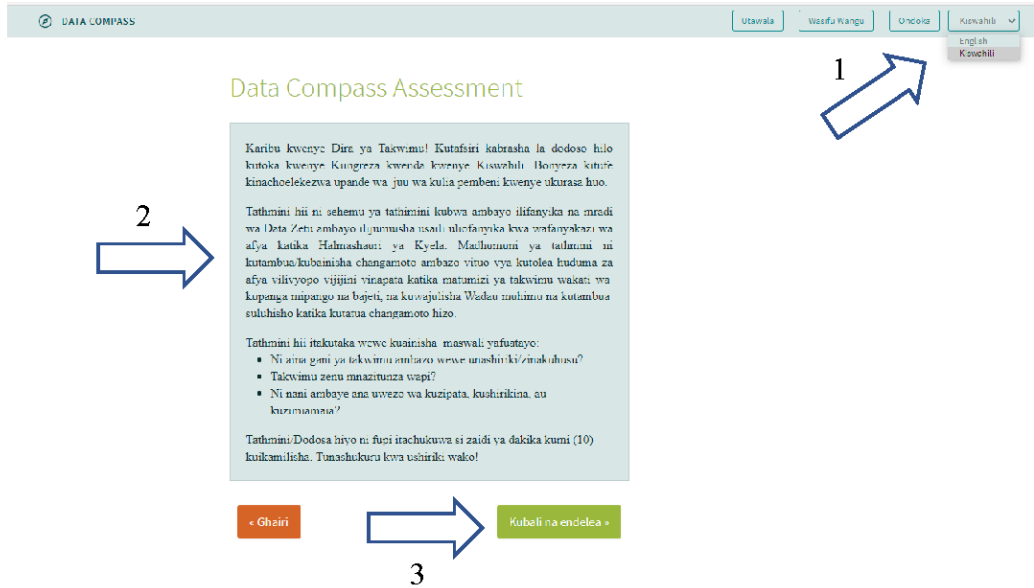
Why this matters:

Dataflows are not a easy things to understand. This resource helps participants feel comfortable that they are completing the survey accurately so they can focus on how the questions are relevant to their work.

Flow Mapper Survey User Instructions

Access the Data Compass Survey at <http://bit.ly/KyelaDataCompass>. Please read the following instructions closely and follow the numbers outlined in each step

Step 1: (1) Change language to Swahili → (2) Read introduction → (3) Save and Continue



Step 2: (1-4) Indicate your facility → (5) Indicate your role → (6) Save and Continue

Data Compass Assessment

1 → Country yako ni nini? *

2 → Region yako ni nini?

3 → District yako ni nini?

4 → Facility yako ni nini?

5 → Una nafasi gani kwenye taasisi yako? *

6 → < Nyuma Save na endelea >

Step 3: (1) Indicate the type of information you regularly work with → (2) Save and continue

Data Compass Assessment

Katika kazi zangu za kila siku, huwa nakutana na taarifa kuhusu:*

- huduma za fedha
- utarabu wa kupanga mipango
- utoaji wa huduma

Chagua vyote vinavyohusika

« Nyuma



Save na endelea »

Important Note: Questions will repeat for each topic you select - You will be asked to answer the three questions below for each topic you select, so only select a topic if you actively engaged in that information at your facility.

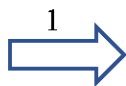
- Ni aina gani ya takwimu ambazo wewe unashiriki/zinakuhusu?
- Takwimu zenu mnazitunza wapi?
- Ni nani ambaye ana uwezo wa kuzipata, kushirikina, au kuzimiamia

*indicates a step you will repeat with each topic you select

***Step 4:** (1) Indicate the frequency you engage with the selected information → (2) Save and continue

Data Compass Assessment

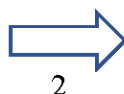
Ni mara ngapi huwa unazalisha, unapata au unashirikisha wengine taarifa kuhusu utoaji wa huduma?*



Chagua moja

- Weekly
- Monthly
- Quarterly
- Annually

« Nyuma



Save na endelea »

***Step 5:** (1) Indicate the person who has the most information about each dataset → (2) Indicate where that information is stored → (3) Indicate who has access to each selected → (4) Save and continue

Important Note: You will be asked to answer this question for Expenditure Reporting, Service Deliver and Planning Request. If you selected multiple topics in Step 3 this will repeat for each.

Data Compass Assessment

1

Nan [redacted] unaamini anafahamu zaidi kuhusu Expenditure Reporting na [redacted]?*

Chagua moja

Facility in charge

Data Clerk

Council Health Management Team (CHMT)

Health Facility Governing Committee (HFGC)

Other facility staff

Uncertain

2

Kwa [redacted] wapi taarifa za Expenditure Reporting na [redacted] [redacted] huhifadhiwa?

Chagua kila kinachohusika na oneshi nani anaweka kuzipata kwenye dropdown

<input type="radio"/>	FFARS	-----	▼
<input type="radio"/>	DHIS2	-----	▼
<input type="radio"/>	GOTHOMIS	-----	▼
<input type="radio"/>	ILS	-----	▼
<input type="radio"/>	PlanRep	-----	▼
<input type="radio"/>	MTUHA Monthly Reports	-----	▼

3

Dropdown options

Only I or a few people can access

All staff can access

Public can access

4


« Nyuma

Save na endelea »

***Step 6:** (1) Indicate the person you share information to about a topic → (2) Indicate the information you share
→ (3) Save and continue

Data Compass Assessment

Ni nahi huwa unamshirikisha au humtumia taarifa kuhusu [REDACTED]
[REDACTED] na ni taarifa kuhusu nini hasa huwa unamshirikisha au
kumtumia?

1


Chagua kila kinachohusika na oneshwa taarifa unazwahirikisha kwenye dropdown

- Facility in charge ----- ▼
- Data Clerk ----- ▼
- Council Health Management Team (CHMT) ----- ▼
- Health Facility Governing Committee (HFGC) ----- ▼
- Other facility staff ----- ▼
- Uncertain ----- ▼

2
Dropdown options

- Expenditure Reporting
- Service Delivery Reporting
- Planning Requests

« Nyuma



Save na endelea »

3

Step 7: (1) Indicate the person you receive information from about a topic → (2) Indicate the information you receive → (3) Save and continue

Data Compass Assessment

Kutoka kwa nani huwa unapata taarifa kuhusu [REDACTED], na ni taarifa za aina gani huwa unapokea?



1

Chagua kila kinachohusika na oneshwa taarifa unazozipata kwenye dropdown

- Facility in charge ----- ▾
- Data Clerk ----- ▾
- Council Health Management Team (CHMT) ----- ▾
- Health Facility Governing Committee (HFGC) ----- ▾
- Other facility staff ----- ▾
- Uncertain ----- ▾

2

Dropdown options

- Expenditure Reporting
- Service Delivery Reporting
- Planning Requests

« Nyuma



3

Save na endelea »

Step 8: (Final Step) Submit your responses

Data Compass Assessment

Tafadhali bonyeza kitufe cha tuma kukamilisha tathmini/ dodoso hiyo. Tunashukuru kwa ushiriki wako!

« Nyuma



Final Step

Wasilisha majibu yako »