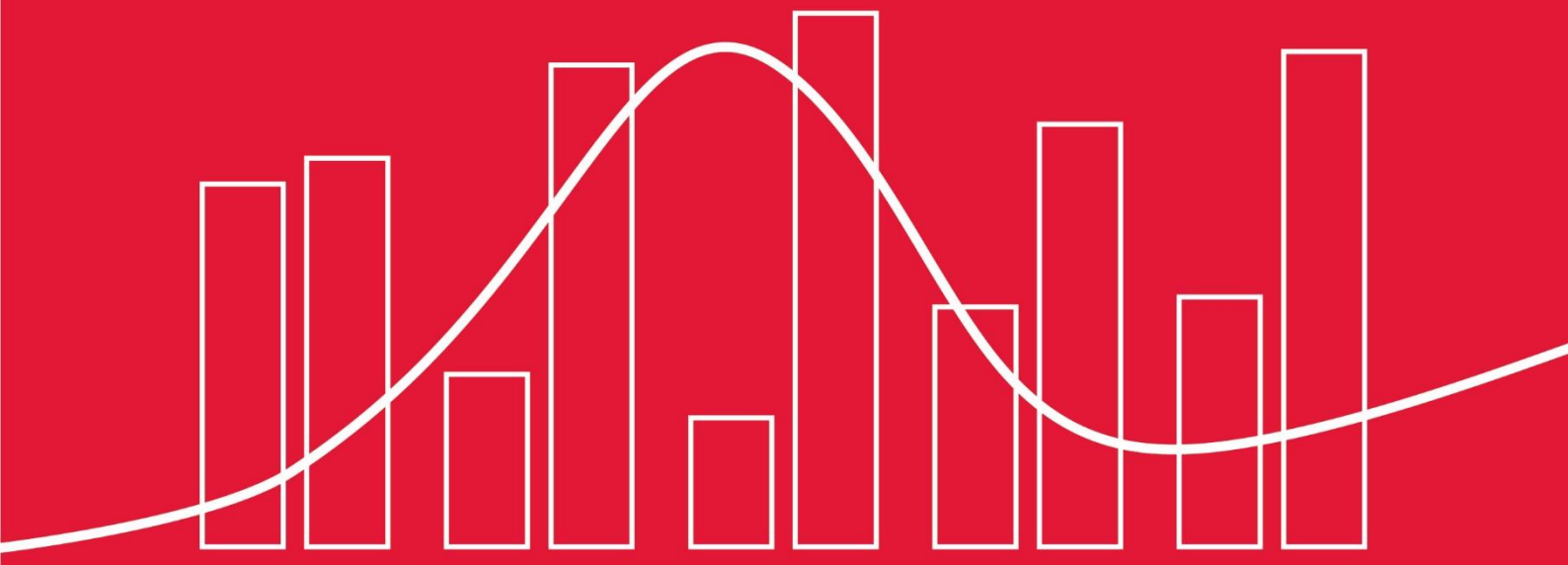
UNAIDS
EVALUATION REPORT

HEALTH SITUATION ROOM EVALUATION

Report



December 2020 | UNAIDS Evaluation Office

DISCLAIMER

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UNAIDS/JC2996

ACKNOWLEDGEMENTS

The Health Situation Room is a digital platform that displays HIV related data visually with the aim of supporting decision-making and programming in countries. In commissioning this evaluation, UNAIDS sought to enhance organizational learning and demonstrate accountability by assessing the relevance, effectiveness, and sustainability of the initiative.

This evaluation was commissioned by the UNAIDS Evaluation Office and conducted in collaboration with the Strategic Information and the Information and Communication Technology Departments. The evaluation was undertaken by IOD PARC in partnership with IMC Worldwide.

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Sincere thanks are extended to UNAIDS HQ, regional and country office staff and the many government and civil society stakeholders who participated in the evaluation.

The evaluation provides a good overview of the status of the Health Situation Room programme. It presents achievements but also gaps and lessons learned, and provides evidence based and actionable recommendations for the future of the programme. These are expected to help define the scope and focus of UNAIDS work at country level on data analysis and visualization as part of overall investments in strategic information and in the context of the new UNAIDS Global Strategy.

UNAIDS Evaluation Office

December 2020

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ACRONYMS AND ABBREVIATIONS

API	application programming interface
ARV	antiretroviral
CBO	community-based organization
CDC	Centres for Disease Control and Prevention
CIV	Côte d'Ivoire
CSV	comma-separated values (file format)
DAC	Development Assistance Committee
DHIS	District Health Information System
DHS	Demographic and Health Survey
ESA	Eastern and Southern Africa
ETL	extract, transform, load
GB	Gigabytes
HHSR	(Kenya) HIV and Health Situation Room
HMIS	health information management systems
HQ	Headquarters
HR	human resources
HSR	Health Situation Room
ICT	information and communication technology
ICT4D	Information and Communications Technologies for Development
ITU	International Telecommunications Union
KEQ	key evaluation question
LMIC	lower and middle-income countries
LMIS	Logistics Management Information System
LOE	level of effort
MIS	Management Information Systems
MoH	Ministry of Health
MoHCC	(Zimbabwe) Ministry of Health and Child Care
MoHP	(Malawi) Ministry of Health and Population
NAC	National AIDS Commission
NACC	National AIDS Control Council
NCD	non-communicable disease
NGO	non-governmental organization
OECD	Organisation for Economic Co-operation and Development
PNG	Portable Network Graphics (file format)
PPP	purchasing power parity
RFP	request for proposal

RMNCAH	reproductive, maternal, newborn, child and adolescent health
RST	regional support team
SDG	Sustainable Development Goals
SGBV	sexual and gender-based violence
SI	strategic information
SID	Strategic Information Department
SIDA	Swedish International Development Cooperation Agency
SRHR	sexual and reproductive health rights
SRMNCAH	sexual, reproductive, maternal, newborn, child and adolescent health
TWG	technical working group
UAC	Uganda AIDS Commission
UCD	user-centred design
UNEG	United Nations Evaluation Group
USG	US Government

EXECUTIVE SUMMARY

The Health Situation Room is a digital platform that displays HIV related data visually with the aim of supporting decision-making at programming level in countries. Data is sourced from host country governments' existing data systems and used to generate varying dashboards using different types of visualizations. The programme, first launched in Kenya in 2015, includes nine countries in Africa: Kenya, Côte d'Ivoire, Lesotho, Malawi, Mozambique, Namibia, Uganda, Zambia and Zimbabwe. Each country's data is stored in its own designated database and has its own set of dashboards and user access settings. The platform is accessible over the internet, with credentials, utilizing the country databases which are mirrored on UNAIDS server in Geneva.

In commissioning this evaluation, UNAIDS sought to achieve both organizational learning and accountability through assessing the relevance, effectiveness and sustainability of the initiative. A theory-based, non-experimental approach to the evaluation looked at the programme as a whole, and the individual country experiences. Four countries were selected for in-depth analysis and a hybrid virtual/in-person case study (Kenya, Malawi, Uganda and Zimbabwe) and the remaining five were subject to lighter touch reviews. The implementation of the evaluation was redesigned at the start of the process to adapt to the travel and movement restrictions imposed due to COVID-19. The key evaluation questions were organized around the Organisation for Economic Co-operation and Development/ Development Assistance Committee (OECD/DAC) criteria of relevance, effectiveness, efficiency, sustainability and equity. These were addressed through four main activities: a stocktaking of the Health Situation Room's implementation over the past five years, an assessment of the demand and usage of the situation room, an assessment of collaboration and transparency elements, and an assessment of country ownership and sustainability.

The evaluation report sets out in detail a stocktaking of the programme as a whole, documenting its objectives, timeline and the intricacies of the investment, the technology and the nine countries' digital health contexts and their engagement with the Health Situation Room. This is a significant element of the evaluation report in order to capture the complexities of the programme's implementation, which in turn provides context for the findings, conclusions and recommendations.

At the time of the evaluation, the Health Situation Room was operational in four countries being assessed as in 'active use' in Côte d'Ivoire, Malawi, and Zimbabwe, and in 'low use' in Lesotho. In three further countries the programme was on hold (Kenya, Uganda, and Zambia). The programme was yet to be launched in Mozambique (delayed due to COVID-19), and the launch in Namibia will not take place as the government is working with another development partner.

KEY FINDINGS

RELEVANCE

The evaluation determined that conceptually, the Health Situation Room is highly relevant across all countries as they each embraced (to different extent) advances in aspirations and achievements of national health information system policies, within which digital health strategies were usually a feature. However, the programme's implementation, driven by UNAIDS HQ and regionally, significantly reduced the relevance at local level. In its role as programme lead, UNAIDS drew on its strengths, particularly its expertise in HIV data systems, which however put it at a disadvantage when management of the programme was moved to the broader (than HIV) health infrastructure at national level. And over the course of the programme, there was a major increase in the investment in the digital health data space, by actors with more experience and resources.

EFFECTIVENESS

Through the programme, UNAIDS was highly effective in building demand for data analytics across all the nine countries, garnering high-level attention at presidential or ministerial levels. The raising of expectations, however, was not always able to be maintained, leading to disappointment among some stakeholders.

The data provided by the programme was universally appreciated as valuable and needed, and there were examples across multiple countries using the system to identify poor data by making it more visible and highlighting outliers. In general, however, minimal evidence was identified of systemic use and application of data for decision-making.

While collaboration and transparency were valued, these aspects were inhibited by numerous factors, and compounded by the uneven governance of the programme at country level. There were also multiple examples of miscommunication between the UNAIDS at global level and country offices, with HQ being unaware of significant divergences in the direction that some countries had taken since the programme's inception.

There were different interpretations of ownership across the countries, with the main inhibitor being the country partners' priority to control national data in preference to using a platform hosted in Geneva. Data initiatives also need to be integrated with national digital health roadmaps and investments for greater sustainability.

EFFICIENCY

Ultimately the programme was significantly under-resourced, with costing focused on 'hard costs' (software licensing, etc.) and not enough consideration of the labour required. The dedicated UNAIDS team at HQ achieved an impressive amount with very little, but the demand far outstripped supply. The mix of skills, knowledge and resources was also miscalculated – ICT expertise was present, but there was no ICT4D (ICT for development) component included. The lack of adequate resourcing also left the programme relying on the team at HQ, which further deterred a more context-driven programme.

SUSTAINABILITY

The platform itself is not sustainable, if the metric is the willingness of country partners to pay the licensing fee, but there is much greater longevity as regards the programme's broader objective of improving data analytics approaches and demand. Scaling the programme in its current form is not advisable, but it is important to recognize the opportunities that the initiative has created vis-à-vis the role of UNAIDS in supporting demand for data more broadly, and potentially a platform for specific countries without national capacity to host their own.

EQUITY

There was no current evidence of the programme directly achieving UNAIDS equity objectives, although it was acknowledged that the potential exists for this to happen, as with any data analytics tool. No gender equality skills were explicitly included in the HQ or country teams. Very few stakeholders in-country including at leadership level were female.

CONCLUSIONS

The Health Situation Room generated enthusiasm and appetite for data analytics but failed to deliver comprehensively due to key gaps in the programme design and implementation. The complexity of the initiative was underestimated and under resourced, and the barriers to implementation were greater than anticipated. Each country varied dramatically in their ICT and data governance capacity depending on national income levels and other donor investments. There was a breakdown in communications between UNAIDS HQ and three of the national partners regarding key decision points in the programme's implementation which led to a loss of political capital and ultimately these countries diverged from the existing initiative. Since the programme's inception, the data environment and actors have changed noticeably creating new challenges but also new opportunities. Overall, the learning from the Health Situation Room remains highly relevant to decisions about the different ways in which UNAIDS can be most effective in supporting national-level data analytics objectives.

RECOMMENDATIONS

1. Link the Health Situation Room to UNAIDS' strategic role and create a new theory of change to support it.
    a. This requires better defining the scope of the programme;
    b. Provide sufficient resources and partnerships to deliver; and
    c. Define a new theory of change based on the strategic goals and level of resources available.
2. Revisit the programme design elements.
    a. Importantly, the strategic design of the programme needs to separate the strategic goal from implementation. This means that the goal of increasing data analytical capacity can be achieved, with or without UNAIDS providing a data analytics platform, depending on an individual country's needs;
    b. Given the changes in the digital health ecosystem it is important that the Health Situation Room programme is more closely aligned with the various emerging strategies at global and regional levels;
    c. UNAIDS can also build demand, usage, collaboration and transparency and revisit the programme in countries where it is on hold or where the status of implementation is unclear by facilitating discussions on ways forward;
    d. Whatever routes countries decide to take (i.e., whether or not a UNAIDS-hosted platform is adopted), the programme should be designed for ownership and sustainability; and
    e. The programme needs a standard set of metrics to monitor multiple elements of implementation and progress.
3. Consider two design options.
    a. Design option 1: UNAIDS does not offer a specific platform, and instead acts in the role of convenor for data analytics; and
    b. Design option 2: UNAIDS offers its current platform for those countries who need it, as part of a longer road map towards their national management in the future.

INTRODUCTION

This report presents the findings of the evaluation of the Health Situation Room (HSR) Country Programme commissioned by the UNAIDS Evaluation Office, and undertaken between April and December 2020. It is a synthesis report bringing together the findings from the evaluation that were developed through in-depth case studies ('stocktakes') of four of the nine countries in which the programme was launched (Kenya, Malawi, Uganda, and Zimbabwe), plus lighter touch reviews of the remaining five (Côte d'Ivoire or CIV, Lesotho, Mozambique, Namibia and Zambia). As such, detailed case studies have been created in an annex separate from the main report.

The report is in five sections, beginning with the introduction which briefly introduces the programme, presents an overview of the methodology of the evaluation, and notes some important contexts that informed the approach, particularly due to COVID-19. Overarching evaluation questions are included here, with further information on the more detailed questions about different components of the evaluation included in Annex II.

The second section provides a relatively in-depth explanation and analysis of the programme over its five years, including a timeline of key events and relevant programmatic design elements. This section includes the indicative theory of change which was constructed as part of the evaluation process, and important contextual information summarizing the data ecosystems in the nine countries where the Health Situation Room programme was implemented. It is relatively detailed in order to explain this complicated programme operating in complex contexts.

The third section presents the key findings organized by four of the OECD/DAC criteria of relevance, effectiveness, efficiency and sustainability, with an additional criterion of equity.

Building on the findings, section four presents the conclusions and lessons learned, with the fifth and final sections focused on recommendations.

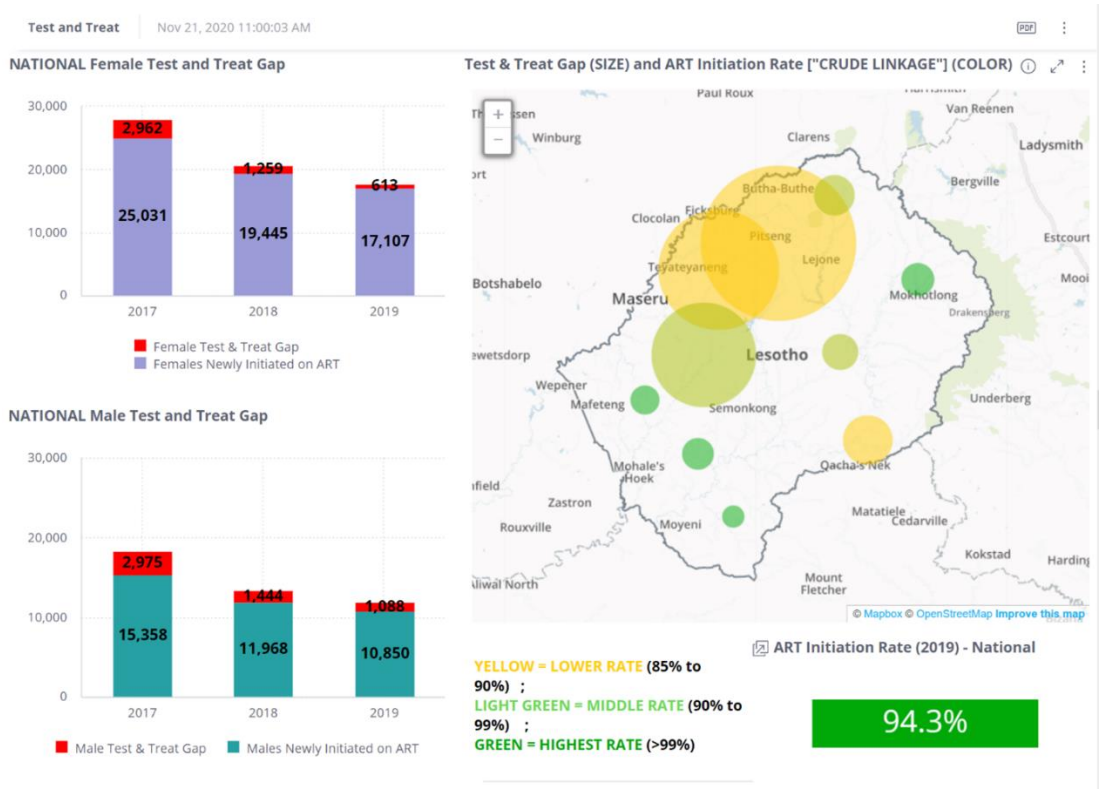
In a separate annex to the main report, the country 'stocktakes' are provided in the form of in-depth analysis of the Health Situation Room programme in four selected countries where primary data collection was focused. These are complemented by briefer overviews of the five other countries that are part of the programme.

1. HEALTH SITUATION ROOM PROGRAMME SUMMARY

1.1. HEALTH SITUATION ROOM DEFINITION

The Health Situation Room (HSR) displays HIV related data visually to support programming and decision-making. It is a cloud-based digital data analytics platform where users can create, view and analyse data dashboards from different data sources. Data is sourced from host country governments' existing data systems; the majority of the data in the Health Situation Room is from District Health Information Software (DHIS2) instances hosting national health and/or HIV data. This data is then used to generate different types of dashboards using different types of visualizations. Viewers can view dashboards via an internet connected device either through a web browser or a mobile app (iPhone and Android). Offline access is not currently provided.

Figure 1: Example dashboard from Lesotho HIV Test and Treat, 21 November 2020



# People receiving PEP	A9ItNm4C0rg	2,113	3,175	3,622	858
	wL0UmpTwp38	2,113	3,175	3,622	858
# People receiving PrEP	SnzLOPZI5Yu	29	7,334	9,223	6,030
# People tested HIV positive (NEW)	ETYQ9xrOgCI	21,108	16,205	13,671	5,835
	tsVPADeBpHd	21,108	16,205	13,671	5,835
# People tested HIV positive (REPEAT)	LO70PBYrBE9	25,218	17,911	15,987	6,245
	nqRDBjMvulW	25,218	17,911	15,987	6,245
# People treated for TB	ByvyeHint5X	25	7,132	7,084	3,319
	tgwLZSVMA7C	25	7,132	7,084	3,319
	ZiSnBNlkh3q	25	7,132	7,084	3,319

The cloud-based system allows dashboard designers to create their own dashboards from existing data stored in the system, applying transforms to the data (called functions and formulas in the SISENSE software), to create different types of insights. Filters can be added to allow users to drill down by different disaggregates. These dashboards can be shared and published via email, PDF, PNG and embedding on a website. Depending on the dashboard, the raw data can be exported into a CSV file format. The software also allows administrators to control, limit, and track access to dashboards by different types of access control models.

Each country Health Situation Room has its own database, and its own set of dashboards and user access settings. Some global users are able to see all the data, dashboards and usage analytics for the purpose of administration, technical support, and monitoring and evaluation (M&E); however, most users are only able to see dashboards associated with their country.

Currently, UNAIDS Geneva hosts the individual country databases and the SISENSE software, and provisions user access; once the Health Situation Room is migrated to a country, local IT administrators will be able to directly manage data, software and user access.

1.2. DIGITAL ECOSYSTEM(S) IN WHICH THE HEALTH SITUATION ROOM EXISTS

Across the world, and especially in lower and middle-income countries (LMICs), investments in digital infrastructure (i.e. networks, computers, servers, etc.) have been accelerating in the last 20 years, especially with the recognition of the need for digital systems to generate and access real time data for better decision-making. Governments, donors, implementing partners and other stakeholders have been supporting the development of information and communication technology (ICT) systems to accelerate the attainment of the Sustainable Development Goals (SDGs) and other country objectives.[1]

The health sector, especially HIV, has received some of the largest digital investments in many LMICs, due partially to the need to track the 90–90–90 treatment targets closely, disaggregated by location and population. The data systems needed to capture and share this data in near real time relate to health facilities, laboratories and pharmaceutical management, and communities to track day-to-day activities, results, stockages, and behaviours. The critical data for HIV programming comes from a multitude of sources, relying on a complex network of data collectors and users. In this context, a data analytical platform, such as the Health Situation Room, can be highly valuable for better insights and decision-making.

However, the success of any digital health investment such as the Health Situation Room relies on the robustness of a country's **digital health ecosystem.** This ecosystem is defined by WHO as national leadership around the coordination of digital health investments and strategic planning activities, organizing and prioritizing investments and plans, and issuing enabling policies and legislation (such as data sharing and data protection requirements). Systems and procedures for creating trusted and relevant data are a vital part of this ecosystem.

A supportive digital health ecosystem also offers different parts of the health network a relevant portfolio of sustainable digital health services and applications to collect, share, and use the data for programmatic purposes. These applications need common interoperability

[1] https://www.itu.int/en/ITU-D/ICT-Applications/Pages/ICT4SDG.aspx

and design standards across vendors and organizations to allow for combination and reuse of data and tools – especially when technology changes and new tools are introduced. Reusable software and services (e.g. identity management) to connect data systems together are also crucial. The need for sufficient physical infrastructure (i.e. networks, internet access, power) and equipment (i.e. phones, computers, servers) cannot be understated for a digital health ecosystem. Finally, this ecosystem relies on a workforce with sufficient digital literacy and skills for a range of different roles and positions to use data and digital tools.

Many Health Situation Room countries face significant limitations, however, due to insufficient staff at ministries of health with appropriate experience; existing siloed data systems that were not designed for interoperability or sustainability; lack of reliable internet and power; high cost of digital devices combined with a high rate of theft; and lack of budget resources to pay for software licenses. These limitations are often systematic, and it will take sustained strategic attention across many years to adequately address them. Many LMICs have official or unofficial policies about hosting data within their countries, due to concerns about data sovereignty and protection, especially of personally identifiable health data on their citizens and residents.

The governments using the Health Situation Room by and large have created digital health strategies to help build and support digital health ecosystems, addressing these limitations. Most call for a system such as the Health Situation Room to help join different siloed data systems together for improved analysis and transparency. However, these limitations need to be taken into account when looking at the ability of the Health Situation Room to reach its objectives, as the programme relies on this digital health ecosystem to succeed.

1.3. HEALTH SITUATION ROOM PROGRAMME OBJECTIVES

The Health Situation Room programme is intended to empower countries to use near real-time[2] data to achieve the Fast-Track targets of ending AIDS.[3] The expanded focus on location and population approach was publicly announced in the UNAIDS World AIDS Day report[4] in 2015. Championed by ex UNAIDS Executive Director Michel Sidibe, the Health Situation Room programme was first established in Kenya in 2015 and expanded over time to launch in nine countries (Côte d'Ivoire, Kenya, Lesotho, Malawi, Mozambique, Namibia, Uganda, Zambia, and Zimbabwe) and with the intention to create a regional platform hosted by the Africa Centres for Disease Control and Prevention (Africa CDC) based in Addis Ababa. As of the writing of this evaluation, each of these countries are at different stages of scale-up and roll-out. No regional Africa CDC platform exists within the Health Situation Room at the time of this evaluation.

Under this high-level goal of investment is a range of objectives,[5] clustered around three key domains:

Table 1: HSR objectives according to data, technology and user adoption

Data	Technology	User Adoption
▪ Quality (data users can trust) ▪ Relevance of selected indicators ▪ Adequate level of measurement	▪ Meets users' requirements ▪ Flexible enough to adapt to new needs	▪ Key components of the project ▪ Need to integrate HSR in the national and county reporting mechanisms

The overarching programme does not have a theory of change or programme logic guiding the activities over the five-year period, although the evaluation identified a clear overall objective as well as many examples of an implicit theory of change during the document review and interviews with key implementers. Also absent for the programme was an overall monitoring and evaluation framework outlining the goals, outcomes and key indicators of success.

While the Health Situation Room started with HIV/AIDS data, there have also been many initiatives in some of the countries to progressively move beyond the initial domain of HIV to integrate broader health issues such as tuberculosis (TB), malaria, sexual and gender-based violence (SGBV), and reproductive, maternal, newborn, child and adolescent health (RMNCAH).

[2] The definition of "real time" varies depending on who says it. Generally, it means data is available as soon as it is added to a digital system, such as the DHIS2. Ideally, it can mean data is available immediately after capture; however, due to the paper-based nature of most data collection, combined with the need to validate and approve submissions, data will rarely be available instantly.

[3] UNAIDS Vision 2020.

[4] https://www.unaids.org/en/resources/documents/2015/FocusLocationPopulation.

[5] 2019 Activity Summary (March 2020).

1.4. TECHNOLOGY PLATFORM

The original platform chosen is called iVEDiX, a data analytics platform selected by UNAIDS Geneva in an RFP process. In June/July 2019, the Health Situation Room was migrated to a new platform SISENSE, driven predominantly by performance and functionality concerns. The design of the technology architecture includes the plan for the eventual hosting and management of the Health Situation Room by host country health informatics teams or similar. Each country has its own database at UNAIDS Geneva, allowing for increased data security and ease of migration to the source country. In addition, the selection of SISENSE was partially driven by the requirements of increased administration management by country IT teams, as well as the relatively accessible hosting and software infrastructure requirements that most country-based health informatics teams should be able to manage.

1.5. MANAGEMENT STRUCTURE

Within the UNAIDS Secretariat, the programme is co-managed by the UNAIDS Strategic Information department (SID), for oversight, coordination, analytics; and the Information, Communication and Technology (ICT) department, for the technical architecture and solution design. UNAIDS Regional Support Teams are responsible for coordination within their regions, and UNAIDS country offices liaise with their national counterparts.

Training and technical support were originally co-shared between UNAIDS (Geneva and regional offices) and iVEDiX staff. With the move to SISENSE, UNAIDS has taken over all technical support and training, as the SISENSE system offers more documentation, local configuration, and administration options for host country IT staff.

Host country governments play an important role in the implementation and management of the programme, as host country data is used in the Health Situation Rooms, the target audiences are predominantly host country staff (from policy makers to health facility staff) and key local stakeholders such as advocacy organizations and community support organizations. At the country level, the programme is usually managed by technical working groups, housed in a government ministry (usually the Ministry of Health), that includes a UNAIDS Strategic Information (SI) Adviser.

At the beginning of the project, an “implementation concept note” is developed with each country. It provides the basis for governing the initiative by describing the roles and responsibilities between UNAIDS and the government counterparts. It serves as a basic agreement on the implementation, timelines, and resourcing of the initiative. A data-sharing agreement was developed later in the initiative, but its use has varied.

2. EVALUATION METHODOLOGY

2.1. PURPOSE OF THE EVALUATION

The evaluation of the Health Situation Room performs both an organizational learning and accountability function. It aimed to assess the relevance of the Health Situation Room programme, how the programme is set up and managed, and its results and sustainability. In doing so, the evaluation assessed whether UNAIDS was providing the right type of support on

strategic information in an effective and efficient manner, with the right lines of responsibility, ownership, and liability vis-à-vis countries.

The primary audience of this evaluation is UNAIDS at all levels (HQ, regional, country), and the evaluation's purpose is to enable UNAIDS and key stakeholders to reflect upon progress and assist future decision-making. In interviews, key stakeholders articulated a desire to use the findings of the evaluation to push data use in the region, therefore the secondary audience can be considered as country stakeholders/UNAIDS partners. A final audience of this evaluation are the broader Information and Communications for Technology (ICT) and data for development communities, especially those involved in improving data usage for health outcomes (e.g. Africa CDC, the President's Emergency Plan For AIDS Relief (PEPFAR), the Global Fund, WHO, international non-governmental organizations, and those developing data analytics platforms for this community more broadly).

Evaluation design

The evaluation used a theory-based, non-experimental methodology, based on defining key evaluation questions, reconstructing the programme's theory of change, looking at the programme as a whole as well as individual country experiences. The country assessments were undertaken as a combination of case-based analysis using 'deep-dive' inquiries into four selected countries and a summary review of the other five countries, based on existing documentation and previous assessments.

2.2. EVALUATION SCOPE

The evaluation covers the nine countries in which the Health Situation Room programme was launched, or planned to be launched (Côte d'Ivoire, Kenya, Lesotho, Malawi, Mozambique, Namibia, Uganda, Zambia, and Zimbabwe). Four countries were selected as 'deep-dive' countries for an in-depth analysis and a hybrid virtual/in-person case study (Kenya, Malawi, Uganda, and Zimbabwe). These four countries were selected by agreed-upon selection criteria and in coordination with UNAIDS.[6]

The team also intended to perform a full analysis of the Africa CDC Health Situation Room but this was not possible since this regional Health Situation Room was put on hold due to a number of challenges, including COVID-19. This situation was similar in Tanzania and South Africa. We have included mention of our findings where relevant.

Finally, the evaluation includes a summary of the broader digital health ecosystem as well as country specific eHealth elements relevant to the Health Situation Room to provide important context to the Health Situation Room design and its implementation.

[6] Selection criteria for deep-dive countries included: launched a SISENSE version of the situation room; mix of length of implementation; high-level government decentralization; high perceived level of government ownership of the situation room; not recently evaluated (e.g. the evaluation of the UNAIDS-American CDC collaboration on SI, 2020); efficiency of team to access data via national consultants and recent experience on the ground; and country acceptance of being a deep-dive country for this evaluation.

2.3. KEY EVALUATION QUESTIONS

The key evaluation questions (KEQs) were revised during the inception period of the evaluation based on initial consultations with key stakeholders and a preliminary document review.

The KEQs used to guide the evaluation fall under four categories of assessment and were answered through four main activities:

- A **stocktaking of the situation room's implementation over the past five years** to better understand the current data ecosystems in which the situation room operates, gain a clear picture of the situation room's implementation timeline and current operating status, and fully understand the situation room's technology architecture.
- An **assessment of the demand and usage of the situation room** to better understand how it has supported increased demand and usage of data to inform equitable, gender-responsive and rights-focused programming.
- An assessment of collaboration and transparency elements to better understand how the situation room supports collaborative and transparent approaches to data sharing and access.
- An assessment of country ownership and sustainability to better understand how the situation room builds country ownership of sustainable data systems, including assessing the total cost supported by UNAIDS, by situation room countries, and other potential costs if countries were to own/manage their own situation room.

These KEQs addressed the OECD/DAC criteria as per the terms of reference:

- Relevance – The extent to which UNAIDS support is consistent with the needs of the countries and complementary to other stakeholders' efforts;
- Effectiveness – The extent to which the programme is making a difference;
- Efficiency – How the programme is managed and the level of partners' coordination, including civil society;
- Sustainability – The longer-term sustainability of the approach; and
- Equity – Gender equality and human rights were addressed throughout the evaluation activities (ref. UNAIDS Guidance Document on human rights and gender equality responsive evaluations). Equity issues are crucial to the SDGs and to leaving no one behind.

The detailed questions for each of the categories of assessment are in Annex II.

3. LIMITATIONS/CONTEXTUAL ADJUSTMENTS

3.1. DEPARTURES FROM THE EVALUATION TERMS OF REFERENCE

To manage the uncertainty caused by the onset of COVID-19 in 2020, and subsequent inability to travel, UNAIDS and the evaluation team agreed an iterative risk-assessment approach consisting of regularly updating the feasibility and risk profile of each stage of the evaluation. The inception was followed by a pilot phase in one country, followed by a roll-out stage in the remaining three countries, and finally the analysis and reporting stage. At the end of each of the first three stages, an assessment was made of the quality and quantity of data attained and the feasibility of proceeding. All four stages were assessed as feasible and complete.

Most activities were originally envisioned to take place via in-person country visits, and this was changed to conducting interviews and consultations remotely using virtual communication technologies. In-country national evaluation team members in Kenya, Malawi, Uganda and Zimbabwe supported the processes and facilitated data collection due to travel restrictions for the international team members.

3.2. LIMITATIONS

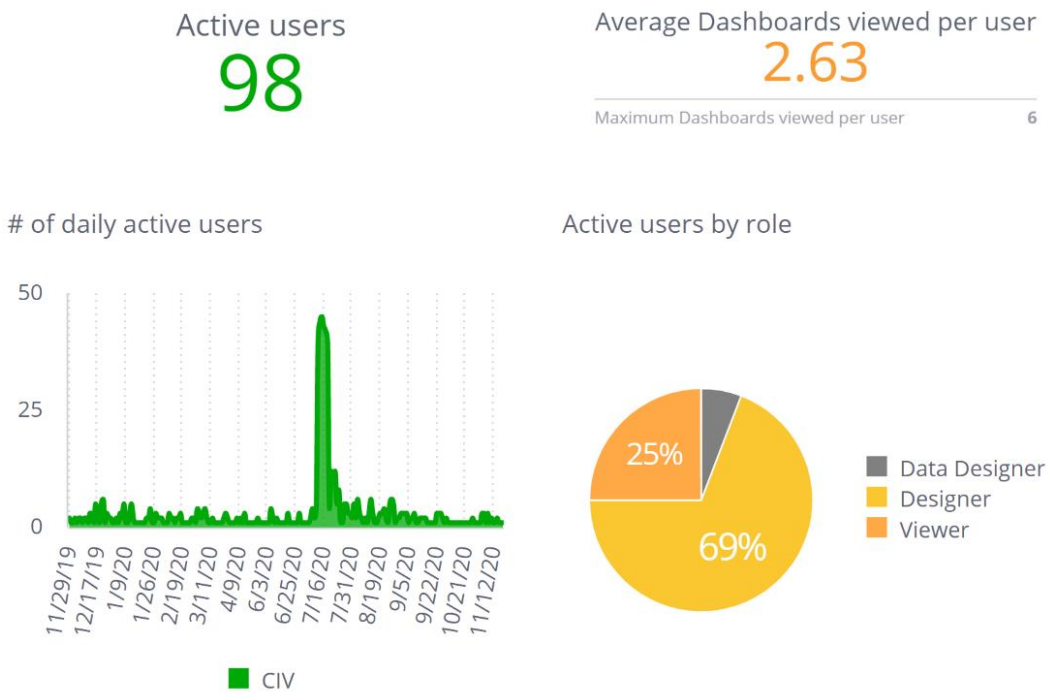
The main risk of virtual data collection was anticipated to manifest as an inability to interview sufficient numbers or types of key stakeholders. Mitigation strategies focused on identifying more than one person per organization or role, tracking the progress of accessing respondents closely, working with national evaluation team members to support the processes, and requesting support from UNAIDS HQ and country offices to reach stakeholders where necessary.

A second concern was the consequences of the international evaluation team being unable to perform site visits or physically observe individuals in their work locations using the data. A key mitigation strategy was the option of performing virtual site visits through video technology, supported by the national evaluation team members. However, due to bandwidth issues combined with some of the usage challenges identified in the findings, evaluation team members were unable to perform virtual site visits. Nonetheless, the SISENSE system provided detailed usage statistics in eight of the nine Health Situation Rooms, including precise

information on who visited which dashboards on different dates. This data was used to triangulate user interview information on usage of the site, where possible.[7]

The following diagram is an illustrative screenshot from the SISENSE system of 360 days (29 November 2019 – 11 November 2020) for Côte d'Ivoire usage statistics. 'Active users' means registered users, not necessarily those active/online at the time of analysis. The pattern below shows a spike in July that corresponds to a training session and a small increase in usage after the training.

Figure 2: Screenshot of Côte d'Ivoire usage statistics for 360 days: as of 21 November 2020



Further limitations were encountered:

System metrics

One benefit of analysing a digital platform is that there should be rich usage statistics, allowing the tracking of access, views, interactions and creation of dashboards by users. The team used this data as much as was possible, with the following limitations.

- The Health Situation Room migrated to the SISENSE system in June/July 2019; as a result, the evaluation team only had access to a year's worth of usage data. For two of the four country deep dives, this lack of iVEDiX data was particularly problematic due to their lack of usage of SISENSE before and during the evaluation;
- Kenya was still using the iVEDiX system during the period of the evaluation. However, the evaluation team did not have access to this system, despite asking for the information, or

[7] The usage analytics show user logins access to the dashboards; however, several countries provided group accounts to district or organizational groups, making it impossible to align specific users with access. However, the team could confirm general access levels by the groups that interviewees were included in.

for a virtual site visit. The evaluation team also asked for user statistics multiple times but this was not provided. Finally, the team received different information from different interviewees on the status of the iVEDiX system which the team was unable to confirm without access to the platform;

- The SISENSE usage metrics had some errors in them (co-mingling of usage data in Kenya) that were not discovered until late in the evaluation. The team did its best to validate/clean the data to provide accurate findings;
- Measuring usage has caveats due to two main usage factors, typified in the Malawi case study:
  - Due to licensing limitations, district health offices were given one user account that they shared across the entire district, thereby combining multiple users into one record in the SISENSE system; and
  - Many users mentioned their access to the SISENSE system was mediated by M&E or IT staff, again due to the limitation on licensing. These users would request periodic downloads or screen shots from the technical staff for their usage, masking their actual usage of the system; and
- The team struggled with pulling accurate records from the SISENSE system on dashboards created by users due to some permissions settings – in order to "share" a dashboard, ownership of the dashboard was changed to a member of the UNAIDS ICT team, thus obscuring the fact that the dashboard was in fact created by a country user. However, the team does not believe, based on interviews, that many dashboards were created by in-country Technical Working Group (TWG) users outside those created during training sessions.

Key informant interviews

- Arranging virtual consultations and meetings often took longer to schedule and confirm;
- Occasionally, a respondent did not attend at the allotted time. However, most respondents or representatives of their organizations were willing and able to participate in virtual meetings or interviews. A certain amount of 'snowballing' was possible as participants made recommendations, or the evaluation team requested recommendations of other people to speak to. However, the team recognizes there were a few key individuals (often senior-level staff) who were unavailable for interview;
- A small number of invited respondents were unresponsive or declined to participate;
- Due to COVID-19, it was not possible to follow up in person at offices or sites to spontaneously identify additional participants, for example colleagues of respondents or other teams and departments that may be situated close by; and
- In-person site visits by in-country evaluation team members to see where and how respondents used the Health Situation Room in practice were not possible due to COVID-19.

3.3. GO/NO-GO CRITERIA

The iterative approach to the evaluation ensured that informed decisions were made by both UNAIDS Evaluation Office and the evaluation team to agree continuance or not at the key

stages in the process. The 'go/no-go' criteria were based on whether both UNAIDS and the evaluation team believed there was sufficient information to make an informed assessment on the UNAIDS programme.

3.4. QUALITY ASSURANCE

The evaluation drew on both UNAIDS and wider UN Evaluation Group (UNEG) guidance for constructing and finalizing the key products for the evaluation, namely the inception report and the evaluation report. Given the uniqueness of the evaluation, both reports were tailored for the context appropriately.

3.5. ETHICAL APPROACHES

As the subject of the evaluation is the programme and the evaluation did not include human subjects research, formal ethical review board approval was not required. The evaluation implemented the following ethical approaches.

Gender responsiveness and human rights-based approach: the evaluation addressed gender and key populations as a central tenet of the evaluation focus in terms of the data that is being processed and used for decision-making. Within the programme the evaluation assessed the extent to which data is age and sex-disaggregated consistently, and among the respondents the evaluation observed the sex of evaluation participants, though gender was not a consideration in selection of interviewees.[8] In consideration of human rights, the evaluation remained attentive to risks such as the possibility of disaggregation allowing re-identification of individuals from key population data, where samples are small. The rights of the data subjects were considered throughout the evaluation data collection and analysis to identify where the intervention protects, or fails to protect, human rights.

Responsible data management: Drawing on the Responsible Data Lifecycle (USAID 2019, based on UNEG standards) the evaluation implemented responsibility data management in two ways – how the evaluators conducted themselves, and how the evaluation analysed the intervention's approaches to data management. The evaluation adhered to IOD PARC's Data Protection Policy and Ethical Code of Conduct throughout.

Data security and privacy: It was possible that the evaluation could have encountered data security or privacy breaches, concerns or poor practice within the programme. A three-stage response plan was incorporated in order to highlight, address (where appropriate), and refer as needed. Fortunately, no such response was required during the evaluation period.

Ethical protocols: The evaluation applied IOD PARC's Ethical Code of Conduct informed by UNICEF's Procedure for Ethical Standards in Research, Evaluation, Data Collection and Analysis. The evaluation adhered to the 'Do No Harm' principle, and placed data protection and informed consent processes at the centre of activities.

[8] The interviewee list was provided by UNAIDS country offices to capture all of the key stakeholders in the HSR. The team noted the gender of these stakeholders as part of the assessment.

PROGRAMME ANALYSIS: STOCKTAKING

4. HISTORY OF THE HEALTH SITUATION ROOM

The Health Situation Room programme was championed by past UNAIDS Executive Director, Michel Sidibé, who envisioned a health situation room that

> *...is not [an] HIV-AIDS tool only. It is a tool that will take AIDS out of isolation and make the link with maternal health, child health, with NCDs, with cancer, with all those issues which are affecting our people.*
>
> *Michel Sidibé, Executive Director - UNAIDS (2009–2019)*

4.1. FIRST LAUNCHED IN KENYA

The Health Situation Room concept in Kenya was developed in July 2014 in a high-level visit between Michel Sidibé, Executive Director of UNAIDS, and H.E. Uhuru Kenyatta, President of Kenya, for the purpose of providing easy access to key HIV data in a user-friendly manner to inform decision-making, programming and investment. In an October 2014 concept note, the following key objectives were outlined:

- Utilize the existing data to present selected indicators in an interactive and dynamic way to visualize the national, and country situation of HIV and other related indicators;
- Monitor and map the situation of antiretroviral treatments (ARVs), other commodities, stock-outs at service delivery points in order to ensure real-time information at local level by location and population and rapidly address service outages;
- Provide an interactive platform that end users can use to visualize the potential outcomes of programmatic and financial decisions;
- Provide simplified graphic tools to monitor new HIV infections and AIDS-related deaths for targeted interventions and strengthened quality of services;
- Monitor the implementation of national policies related to ART and key populations; and
- Ensure uptake and use, and quality control of data through on-site supervision.

In September 2015, UNAIDS and the Government of Kenya, led by the National AIDS Control Council (NACC) in the Ministry of Health (MoH), officially launched the Kenya HIV and Health Situation Room (UNAIDS, iVEDiX) as a partnership to fast-track progress towards ending the AIDS epidemic by 2030. In a press release, President Kenyatta said,

As we all know, what gets measured gets done. I am pleased that today the Internet-based dashboard, the Kenya HIV Situation Room, has been unveiled. The use of ICT is a priority for my government.[9]

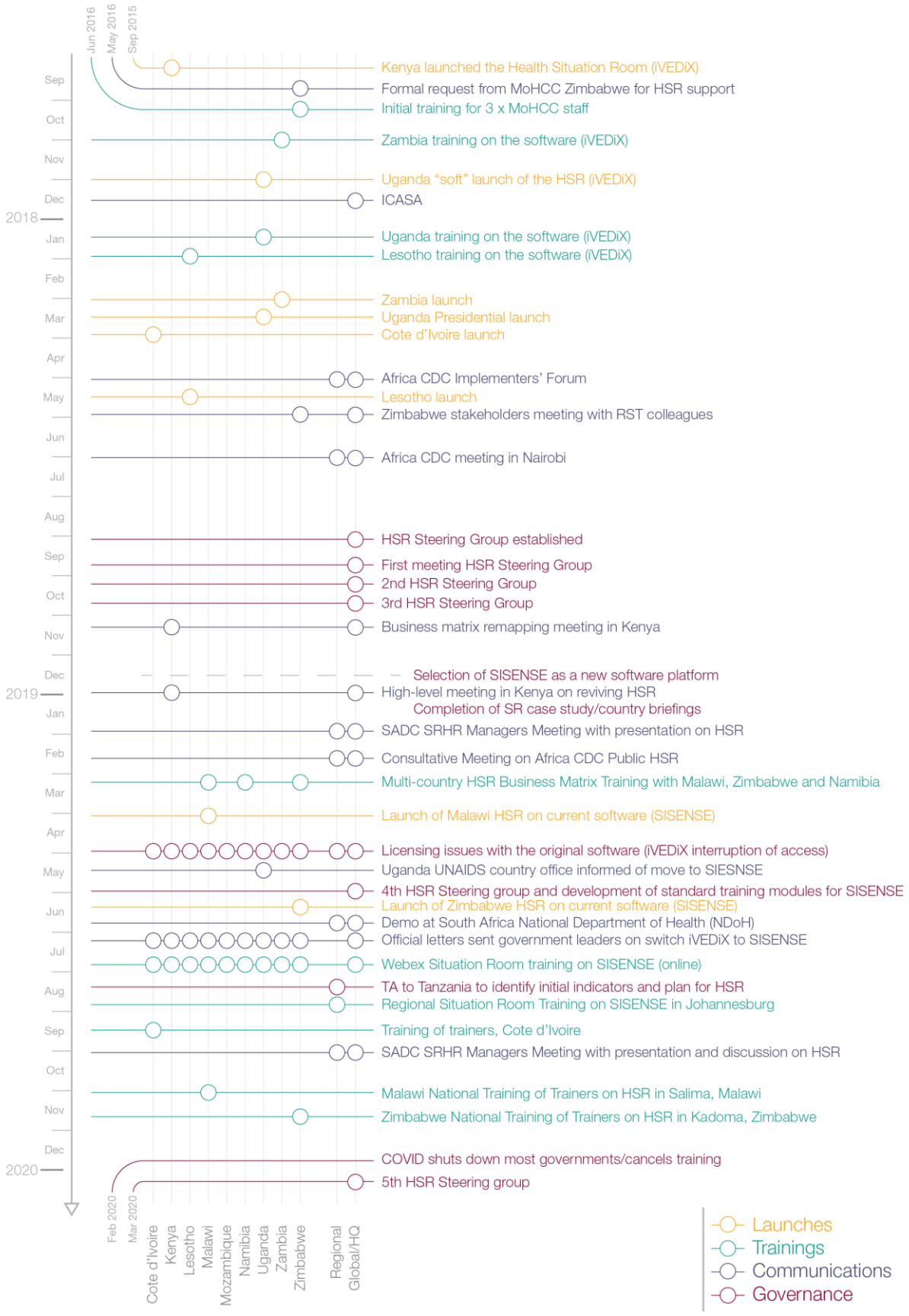
4.2. HEALTH SITUATION ROOM EVOLUTION

Subsequent to the launch in Kenya, the Health Situation Room programme expanded to Côte d'Ivoire, Lesotho, Malawi, Uganda, Zambia and Zimbabwe, with additional work in Mozambique and Namibia, as well as the Africa CDC, South Africa and Tanzania.

It is important to note that the programme started with a two-page concept note with the core elements but was not a formalized programme with a global steering committee until 2018. This activity was supported and promoted by the Executive Director who would find funding and other resources to staff and fund elements of the programme. As a result, the programme does not have many of the design and implementation elements that would normally be seen, such as a theory of change, budget line items at the country level, dedicated staff (beyond SI advisers at the country level) and metrics for M&E.

[9] https://www.president.go.ke/2015/09/17/speech-by-his-excellency-hon-uhuru-kenyatta-c-g-h-president-and-commander-in-chief-of-the-defence-forces-of-the-republic-of-kenya-at-the-official-launch-of-kenyas-fast-track-plan-to-end-a/

4.3. HEALTH SITUATION ROOM PROGRAMME TIMELINE

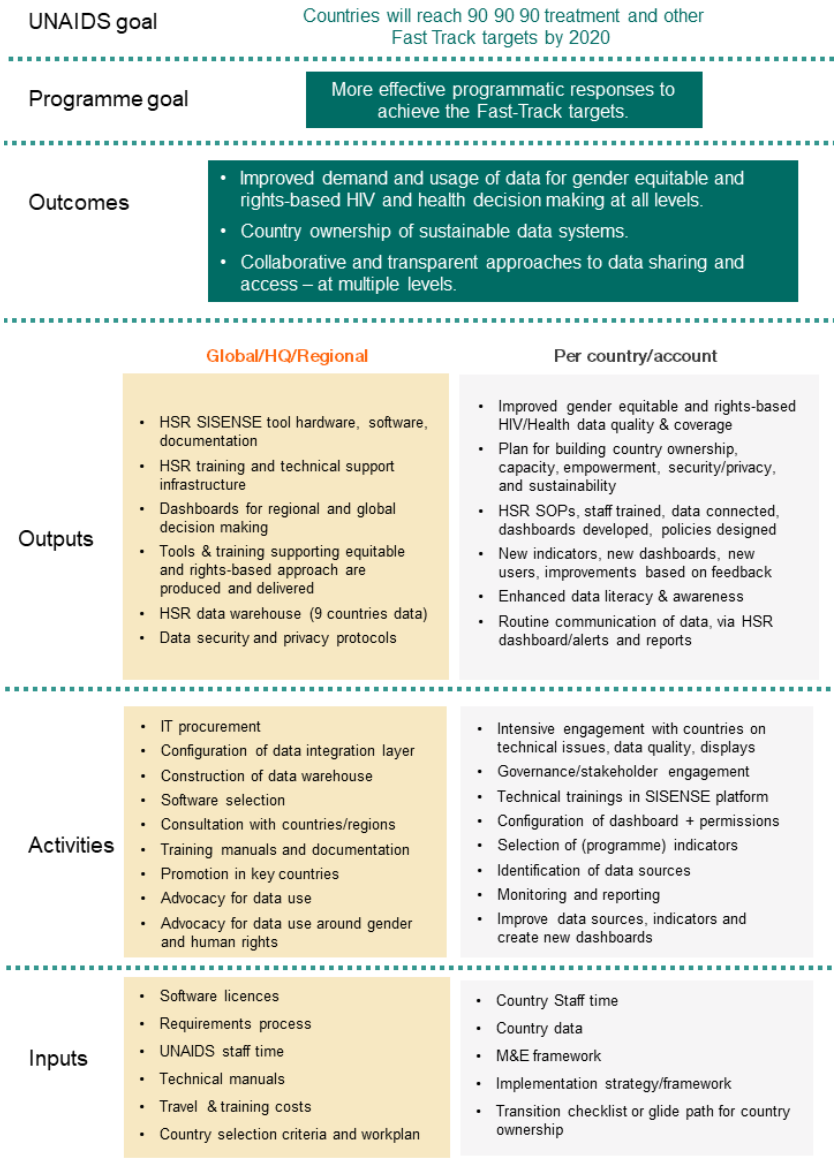


5. PROGRAMME DESIGN AND IMPLEMENTATION

5.1. IMPLIED THEORY OF CHANGE

As mentioned above, the Health Situation Room does not have an explicit theory of change, namely the defining framework for how the programme will support the strategic goals of UNAIDS, an explicit defined programmatic goal and outcomes. However, across all the different programme descriptions, concept notes and other key documents, the team found consistent elements that constituted an implicit theory of change. The team made these implicit expectations explicit in the inception report and then tested the theory of change during interviews and other analysis. The following is the revised retrospective theory of change for Health Situation Room (see Annex I).

Figure 3: Reconstructed theory of change



Acronyms: SOP = standard operating procedure

5.2. PROGRAMME RATIONALE, CONTEXT, CRITERIA, KEY ASSUMPTIONS AND RISKS

Based on the interviews and review of the documentation, the following programmatic rationale, context, criteria of selection and key assumptions and risks were identified by the evaluation team.

Figure 4: SDG Goal 3 that the HSR supports – from Malawi Training of Trainers slide

Rationale

- Country HIV plans and programmes are not currently sufficiently driven by data;
- UNAIDS requires accurate data from countries to be able to provide them with targeted support to achieve the Fast-Track targets;
- Countries can benefit from closer to real-time data to make programming and resourcing decisions and identify trends; and
- Expansion of Health Situation Room into non-HIV data will support HIV programming. synergies and interlinkages.

Context

- Data and information systems are 'on the agenda' of most countries, multilateral agencies and development partners;
- Many donors and governments are investing in digital data systems and associated ICT systems (data and hardware); and
- There is growing pressure on organizations, countries, and other partners to be able to articulate more defensible, accurate, timely and consistent data for the SDGs and other purposes.

Implied assumptions in the theory of change

Relevance

- Countries have a clearly articulated need for improved data analytics systems using their own data;
- Much of the data for data analytics is hard to access due to siloing of systems, so a platform that pulls data together from different platforms is a of high value;
- A similar health data analytics platform does not currently exist at the country level; and
- Countries are motivated to improve their own data capacity.

Effectiveness

- Providing users with visualized data will promote better decision-making;
- Senior-level management at UNAIDS buys into the concept and provides sufficient resources to UNAIDS at HQ/regional and country levels;
- There is clear delegation of responsibilities between UNAIDS IT, strategic information and programme staff at HQ/Regional and country levels to support dedicating time to manage the programme effectively;
- Senior level leadership within host country governments are able to remove political and policy barriers to data sharing, resource mobilization, and prioritization of the Health Situation Room for host country staff;
- Sufficient governance, IT, data analytics, and visualization design resourcing and capacity are available within or to host country governments to support country Health Situation Rooms;
- Country systems will be largely responsible for data collection, quality and management, with UNAIDS support and technical assistance in countries where UNAIDS has a presence; and
- Countries have data gaps, especially with community-lead monitoring and data quality, but these will not be a barrier in developing the Health Situation Room.

Efficiency

- UNAIDS, based on its ongoing relationship with countries, is generally aware of what data is available in any particular country;
- The Health Situation Room will promote improved data quality by improving transparency of data, as well as building demand for data by key stakeholders (creating a positive feedback cycle);
- The Health Situation Room programme will build skills within host country governments for data sharing (building application programming interfaces – APIs), data interoperability and data dashboard design;
- The right kind and sufficient quality of country data sources will be made available to UNAIDS, and can be disaggregated to an appropriate level of detail (i.e. facility level); and
- Digitized data for the Health Situation Room will not require significant manual clean-up or manipulation to be ingested into the programme.

Sustainability

- Expanding the Health Situation Room to non-HIV health areas will improve sustainability and ownership; and
- Country ownership is clearly defined and UNAIDS can articulate the extent to which the Health Situation Room, singly or as a collective, can be 'owned'.

Equity

- Most countries will require some support on SI to improve granularity and disaggregation, particularly by sex, key populations and certain indicators;
- Users of the Health Situation Room will include civil society and advocacy groups to promote transparency and accountability; and
- Provision of data focused on equity will lead to increased equity in decision-making.

Risks

- Countries may not buy in or be willing/able to invest in the Health Situation Room after UNAIDS ends its support;
- High expectations followed by poor performance may burn political capital by UNAIDS and host country champions;
- As countries decide their own indicators and make major system decisions, the burden of this flexible working approach may become overwhelming for UNAIDS HQ (especially the ICT team);
- Lack of dedicated positions leads to high staff turnover in country Health Situation Room teams;
- It is very difficult to articulate and measure the contribution of the Health Situation Room to improved HIV and health programming;
- Capacity at the host country government offices may not exist considering the high technical skill required to configure data warehouse and integration layers.[10] In most cases, these tasks may need to be handled centrally by UNAIDS which inhibits true ownership at country level;
- Intensive focus on technology gadgets eclipses the practical aspects of influencing decisions and programming. The Health Situation Room is a tool, not a solution; and
- Low awareness/capacity by country Health Situation Room teams to understand potential privacy/security risks associated with its dashboards or data.

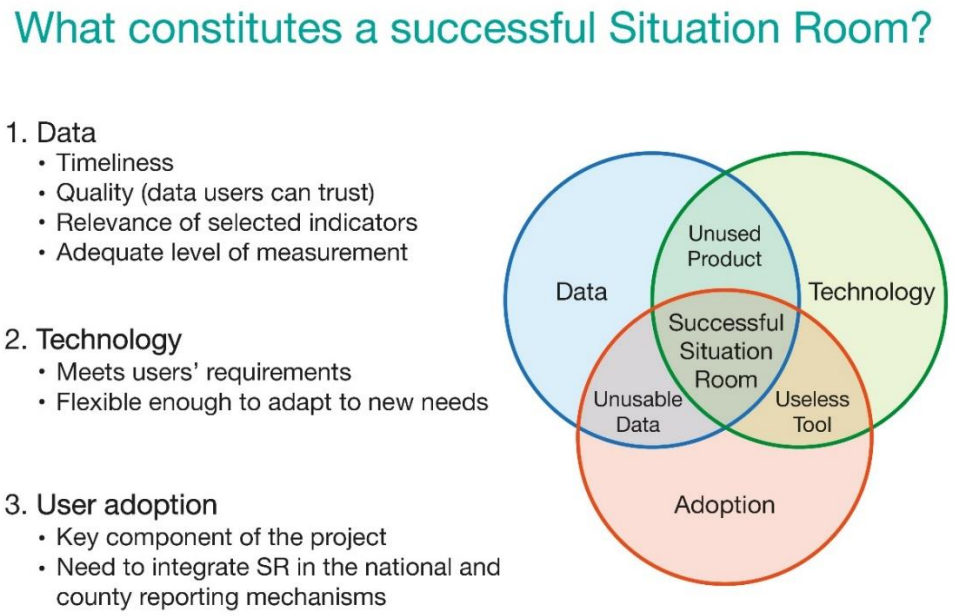
5.3. METRICS OF SUCCESS

As mentioned above, no formal M&E plan or framework was developed for the overarching Health Situation Room programme nor did any country reviewed have a country-specific programme M&E plan. However, the team discovered common definitions for success, as outlined in the following diagram.[11]

Figure 5: Slide from Health Situation Room overview presentation used in trainings (as of 2017)

[10] Some countries, such as Kenya, Malawi, Uganda and Zimbabwe, may have in-country technical expertise to manage the IT systems. However, the Ministry of Health or National AIDS Commission may not have the staff in-house nor have the capacity to hire skilled staff.

[11] This slide was found in multiple training materials used by the UNAIDS HQ team.



6. CONTEXT ELEMENTS: DIGITAL HEALTH ECOSYSTEMS AND ICT4D

Performing a detailed assessment of the digital health ecosystems was out of the scope of this environment, but the team felt that understanding the current state of these ecosystems is an important element in understanding the context in which the Health Situation Rooms are performing. The team also found that the UNAIDS HQ/regional support teams (RST) did not explicitly address this context in their design work or reporting. A more detailed analysis of the digital health ecosystem is included in Annex VI.

6.1. DIGITAL ECOSYSTEMS – AN OVERVIEW

Understanding a country's digital ecosystem is critical for projects such as the Health Situation Room as it provides context on where the key actors are in their digital transformation journey and where gaps persist that will impact the outcomes and sustainability of these digital investments. Critical pillars of a digital ecosystem include: *"(1) sound enabling environment and policy commitment; (2) robust and resilient digital infrastructure; (3) capable digital service providers and workforce (e.g. both public and private institutions); and (4) empowered end-users of digitally enabled services*."[12]

Barriers such as lack of affordable internet, devices, or consistent electricity will reduce uptake and usage of cloud-based tools, especially by those more marginalized. Solid legislation and policies for ICT expansion can support public and private sector investment in increasing the digital landscape, which will in turn make investments such as the Health Situation Room more likely to succeed.

[12] https://www.usaid.gov/sites/default/files/documents/15396/USAID_Digital_Strategy.pdf

ICT4D expertise

Information and Communications Technologies for Development (ICT4D) is the practice of using digital technologies for international development and humanitarian response. Professionals in this space have experience in not only the technology or data, but also the intricacies of data governance, change management, digital strategy development, digital inclusion/equity considerations, appropriate resourcing, usage metrics and sustainability of data systems. ICT4D experts are able to facilitate and leverage the expertise of ICT staff, SI staff, public health experts, and policy makers to address the different facets of ICT projects.

Summary of African digital ecosystems

Despite the recognition of the role ICTs play as a cross-sector enabler for development, countries in the Africa region continue to experience fragmented data/ICT systems, internet affordability challenges, and telecommunications infrastructure/connectivity barriers that prevent the uptake and effective use of ICT. There are also significant gaps between private sector usage and access to ICTs and public sector, as well as gaps based on location (rural vs urban), age, gender and income. Lack of access to power is in particular a barrier to widespread ICT adoption.[13]

6.2. PRINCIPLES FOR DIGITAL DEVELOPMENT

There are well documented industry best practices for how individual digital investments are designed, developed, implemented and maintained that enable scalability, usability and sustainability. The Principles for Digital Development, maintained by the Digital Impact Alliance (DIAL), are nine living guidelines informed by the lessons learned by the development community and intended to help organizations integrate best practices to succeed in digital investments. It is valuable for organizations undertaking digital projects in LMICs to align with the Principles for Digital Development where applicable during IT design, development and implementation phases, as well as assess/re-assess gaps and opportunities for improvement during operations and enhancement cycles to support long-term sustainability. A more detailed summary can be found in Annex VI.

6.3. DIGITAL HEALTH ECOSYSTEMS – AN OVERVIEW

As low and middle-income countries transition from paper to digital information and management systems, there are opportunities to use digital innovations to improve programme design, service delivery and individual and population health outcomes. However, a country's digital health enabling environment can underpin the success of digital health investments such as the Health Situation Room.

For example, a country whose health system is primarily paper based will lack the necessary IT infrastructure, workforce capacity, governance and leadership structures, as well as supportive policies to effectively manage a Health Situation Room without significant support from UNAIDS or another partner.

[13] https://www.scientificamerican.com/article/why-hasnt-africa-gone-digital/

The digital health enabling environment consists of interrelated core building blocks necessary for maturing and sustaining a robust national digital health ecosystem and the individual digital health applications and systems, including leadership and governance, investment, legislation, applications, standards and interoperability, infrastructure and digitally capable workforce. Under the country findings is a summary of the digital health ecosystem by country, and a more detailed analysis can be found in Annex VI.

7. ESTABLISHING A NEW HEALTH SITUATION ROOM

7.1. PRE-SELECTION ANALYSIS

Interest in hosting a Health Situation Room comes from country teams, usually a combination of the UNAIDS Strategic Information (SI) adviser or country director and the host government counterparts. Once commitment to exploring the Health Situation Room concept is confirmed, the UNAIDS management team at headquarters then assesses whether the country meets the country criteria of being a Fast-Track LMIC and fully committed to the activity. The country context is then assessed to see if the prerequisites are met.

Prerequisites for implementation

- National Health Information system (DHIS2 2.0) or equivalent updated monthly;
- Logistics Management Information System (LMIS) updated monthly;
- Data is disaggregated at subnational and facility level;
- Data is disaggregated by age and gender;
- Host country has a UNAIDS country office with a strategic information (SI) adviser and/or fast-track adviser;
- Host country agreement and concept note with UNAIDS, including plan, timeline and resources;
- Host country staff lead design (identification of indicators, priority dashboards, user lists) and project management;
- Host country provides and leads on training, provision of personal devices (laptops and desktops), and local technical support for subnational staff and other users; and
- Host country has sufficient internet connectivity and ICT access by users.

Once the country is determined to meet the criteria, discussions begin on the development of the concept note, workplan and resources from all stakeholders. This project preparation stage includes the official appointment of a project coordinator from the host government ministry (usually MoH or National AIDS Commission/NAC).

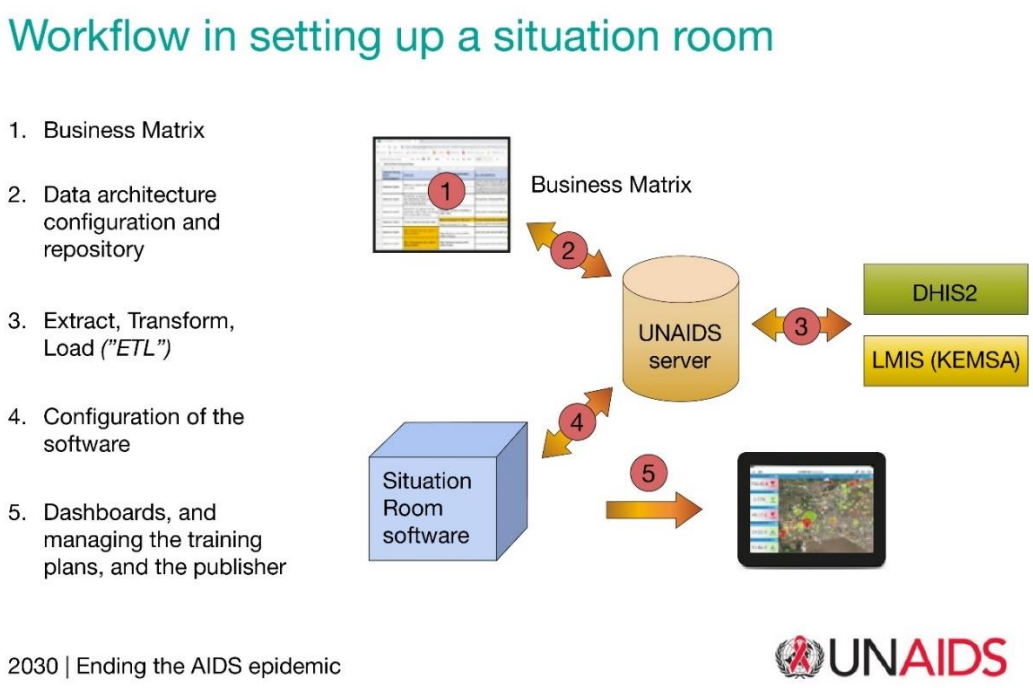
7.2. COUNTRY AGREEMENT

Once the above has been completed, the process of establishing a new Health Situation Room in a country requires a mix of policy decisions and software configuration activities.

The first step is to identify all the key indicators and sources of data, via the development of a business matrix. This matrix is usually designed in Excel but can be imported into the Health Situation Room for long-term management. The Health Situation Room country office usually

facilitates, in partnership with the UNAIDS global team, a workshop in order to create this business matrix.

Figure 6: Slide from training of data managers: workflow to set up an HSR



Acronyms: DHIS = District Health Information System. KEMSA = Kenya Medical Supplies Agency, LMIS = Logistics Management Information System

Once the business matrix is established, the UNAIDS HSR ICT team (at HQ) then works with the host country data managers on data architecture and establishing the country's unique database repository at UNAIDS. The ICT team will then start the extract, transform, and load (ETL) process to pull data from the host country data system into the Health Situation Room database.

Once the data is in the database, the ICT team works with the Strategic Information (SI) team (global, regional and country office) to configure the roles, permissions and folders, and start to develop the identified dashboards. The final step is to conduct training with the in-country data managers on the country Health Situation Room, including how to add/edit data, develop dashboards and review usage statistics.

7.3. POST LAUNCH – MANAGEMENT OF THE HEALTH SITUATION ROOM

After launch, the Health Situation Room is managed by a combination of UNAIDS Global and Country HSR Technical Working Groups (TWGs) (made up of UNAIDS country office staff and host country counterparts). The following section details the management structure.

8. MANAGEMENT STRUCTURE

The Health Situation Room programme is centrally designed and managed, with significant country level input and support from UNAIDS country offices and host governments, as outlined below.

8.1. UNAIDS SECRETARIAT (GLOBAL/REGIONAL MANAGEMENT)

Within the UNAIDS Secretariat, the programme is co-managed by the UNAIDS Strategic Information department (SID), for oversight, coordination and analytics; and the Information, Communication and Technology (ICT) department, for the technical architecture and solution design. UNAIDS Regional Support Teams are responsible for the coordination within their regions. The South Africa Regional Office has also been an instrumental member of the HSR programmatic team, providing two staff part time to support design and implementation at the country level, one with funding from the Swedish International Development Cooperation Agency (SIDA).

Training and technical support were originally co-shared between UNAIDS (Geneva and regional offices) and iVEDiX staff. With the move to SISENSE, UNAIDS has taken over all technical support and training, as the SISENSE system offers more local configuration and administration options for host country IT staff.

A HSR Steering Group was formed as the UNAIDS internal Steering Group, which includes members from HQ (SID, ICT), programme and governance branches, RST/Eastern and Southern Africa; and two country SI advisers. The function is to guide the implementation of the Health Situation Room initiative.

8.2. UNAIDS COUNTRY OFFICES

The country offices play a key role with the establishment and management of the country-specific Health Situation Room. It is normally the SI adviser who liaises with national counterparts to develop a country action plan for the design, launch and management of the Health Situation Room. The country office is responsible for negotiating data access and facilitating workshops to identify key indicators and dashboards, as well as key user groups with host government counterparts. They also support implementation in-country by participating in country technical working groups. These teams are also asked to provide and/or advocate for funding for trainings, hardware/software, and other Health Situation Room needs. This is part of the broader support the country office provides on SI.

8.3. HOST COUNTRY GOVERNMENTS

Host country governments play a vital role in the design, implementation and management of the programme, as host country data is used in the Health Situation Rooms and the target audiences are predominantly host country staff (from policy makers to health facility staff) and key local stakeholders such as advocacy organizations and community support organizations. At the country level, the programme is usually managed by technical working groups, housed in a government ministry (usually the Ministry of Health), that includes the UNAIDS Country SI Adviser.

9. BUDGET/COST OF INVESTMENT

The following information was provided by the UNAIDS team as resources required for the Health Situation Room programme as it is currently being implemented with UNAIDS Geneva providing the ICT infrastructure.

9.1. SUMMARY OF RESOURCES REQUIRED

Table 2: Summary of resources required at global and country levels

UNAIDS Global	UNAIDS Country	Host Government
ICT infrastructure		
SISENSE software, databases, servers, hosting, networks	Fund or advocate for the purchase of devices, servers, monitors, data bundles	User devices and internet access, national data systems feeding data into HSR
Labour		
ICT staff, SI staff, technical support and training	SI adviser, country director	TWG members, ICT staff, dashboard designers, dashboard viewers
Other costs		
Travel for training and technical support	Support training costs for in-country partners (per diems, facility rental, transportation, food, materials)	Support training costs for in-country subnational partners (per diems, facility rental, transportation, food, materials)

9.2. 2020 BUDGET

The following information was listed in the Situation Room Workplan for 2020, developed in March 2020.

Table 3: HSR costing information for 2020

Activity area	Timing	Funding source	Responsible unit	Budget USD
Refining training modules	April 2020	UNAIDS	ICT, SID, RST	Staff time
Training of consultants (online)	April–May 2020	UNAIDS	ICT, SID, RST	Staff time
User manual and standard operating procedures	May–July 2020	SIDA	RST	USD 15,000
P3 project support/coordinator (RST-ESA)	Jan 2020-June 2021	SIDA USG	RST (6 months) SID (12 months)	USD 162,000 USD 205,000

Country technical assistance	April 2020–June 2021	SIDA Japan USG	RST, TSM	USD 40,000
Prepare an IT country transition plan	June 2019	UNAIDS	ICT	Staff time
Software licenses (SISENSE 7-10 countries)	June 2020–June 2021	Japan		USD 150,000
Produce country specific statistics / analysis on users		UNAIDS	RST, ICT, SID,	Staff time
Support on all the above	Mar 2020–June 2021	USG	TBD	TBD
Technical support	Mar 2020–June 2021	UNAIDS	RST, SID, ICT	Staff time
Total	**USD 572,000 excluding labour efforts**			

9.3. LABOUR REQUIREMENTS

However, the above budget estimation for the UNAIDS Health Situation Room programme does not include the cost of labour for UNAIDS staff. Likewise, the cost for country staff (UNAIDS and host government staff) was not included in the total cost of the HSR investment. According to the interviews, the following were the estimates of the level of effort for the different staff involved in the Health Situation Room. Please note that different countries had different staffing; calculations below are estimated for budgeting purposes.

UNAIDS

The following is the team's estimate of labour investments by position/role at UNAIDS. It is important to recognize that for Geneva/South Africa staff, the level of effort (LOE) is for ALL Health Situation Rooms established and maintained. The percentage of LOE in the tables is per staff member.

Due to the nature of the Health Situation Room platform, the LOE does not scale exactly by number of countries for the ICT and RST teams (i.e. to support one country is not one-ninth of the time to support 9 countries), which is by design. However, this fact is not meant to imply that there is no scaling impact of adding more countries. The "cost" of additional countries is incremental and is very much based on the level of capacity within a particular country to manage their own data and dashboards.

The team has also broken out "set-up" vs "maintenance" as the set-up phase for any country tends to be much more labour intensive. The percentages are meant to represent the spike in LOE needed when a new country is coming on board while existing countries are also being maintained (vs when no new country is coming on board). The LOE is meant to include in-

person or virtual trainings as well as design meetings, technical support and negotiations for concept papers and governance structures.

Table 4: HSR labour investments for UNAIDS

Type of staff					
Across all HSRs					
ICT	Geneva	HSR IT management	2	40%	20%
SID	Geneva	HSR management	1	40%	20%
RST	South Africa	HSR management and strategic guidance	1	30%	20%
Per Country					
SI/Fast-Track	Country	UNAIDS country rep	9	50%	10%
User-centred design[14]	Country	Strategic country input	9	5%	1%

Host government partners

The following are the number of individuals per country whose involvement in the Health Situation Room is required. The funding for these positions may come from central host government budgets or donor funds.

Table 5: HSR labour investments for host government partners

Type of staff	Location	Role	# staff	% LOE Set up	LOE maint-enance
Management	Country	Project leader	1	50%	30%
M&E	Country	Indicators	2	50%	30%
ICT	Country	Data integration	1	50%	25%
ICT	Country	Technical support	2	50%	40%
Programme staff	Country	Dashboard designer	5-10	50%	20%
Programme staff	Country	Viewers	5-10	5%	50%-100%

Other costs

Interviewees also mentioned that certain costs of the project were not paid from the programmatic funds but rather were included in existing operational budgets or in overhead

[14] UCD time has been mainly utilized in high level advocacy, such as for the launch event and its preparation.

costs. The following is illustrative of what different resources were contributed but not always shown on budget.

Table 6: HSR further costs

UNAIDS global	UNAIDS Country Office / Country Donors	IVEDiX (up to March 2019)	Host Government
ICT infrastructure			
Databases, servers, hosting, network/bandwidth	Monitors, servers, devices	--	User devices and internet access, national data systems feeding data into HSR
Other costs			
Travel costs for staff to travel for TWG/first round of trainings	Airtime, training support for TWG/first round of trainings	Travel costs for trainings, staff time for capacity building	Support training costs for in-country subnational partners (per diems, facility rental, transportation, food, materials)

10.TECHNOLOGY APPROACH

As the Health Situation Room is a technology-driven project, the technology infrastructure has a large impact on the implementation of the programme. UNAIDS currently uses SISENSE as its data management and visualization system to create the Health Situation Rooms.

10.1. TECHNOLOGY DESCRIPTION

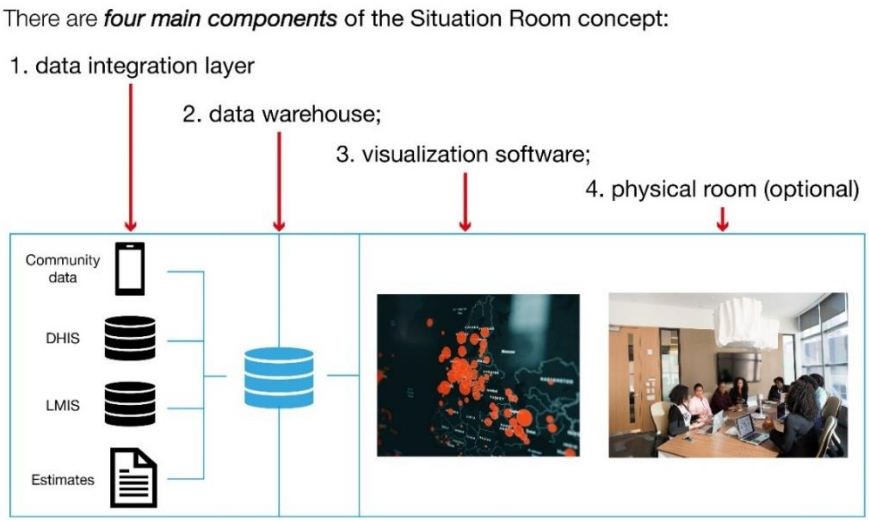
After the initial concept period, the UNAIDS Health Situation Room has never been a literal "room", but rather refers to a digital platform where users can view and analyse data dashboards from different sources in the digital interface. The Health Situation Room has four different layers:

1. **Data integration layer:** Data is sourced from host country governments' existing data systems; the majority of the data in the Health Situation Room is from DHIS2 instances hosting national and/or HIV data;
2. **A data store/warehouse:** This data is pulled via an application programming interface (API)[15] into a country database currently hosted at UNAIDS Geneva;

[15] An application programming interface (API) is a term for a computing interface that manages interactions between two computers. In the case of the HSR, the API pulls data automatically from a country database and stores it in the UNAIDS database for that country on a regularly scheduled basis, without the need for a person to manage the process.

3. **Visualization software:** The SISENSE data visualization software accesses this data to allow users to design and access data dashboards via a web browser or their mobile app;[16] and
4. **Physical room (optional):** Some countries have elected to have a dedicated location or monitor displays in key locations to show regularly updated Health Situation Room data.

Figure 7: Slide from data training, technology overview of the Health Situation Room



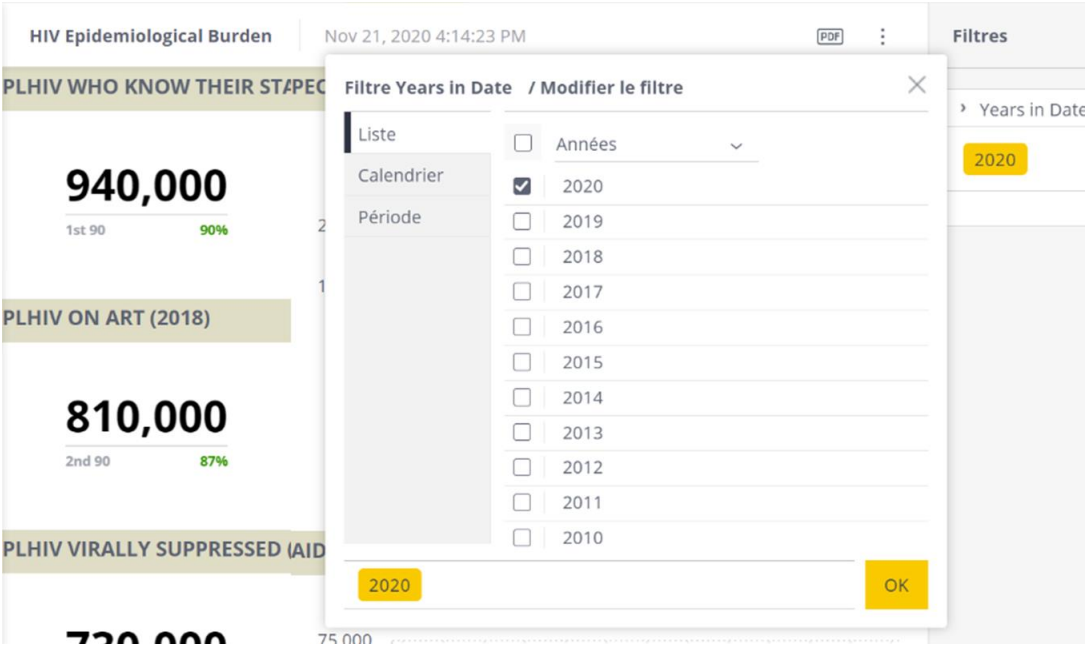
Key features

SISENSE offers designers the ability to create visualizations (called widgets) across multiple datasets in its different data models. This data can be transformed using formulas and functions in R[17] or using the SISENSE function tools, allowing for complex data analysis to be performed. These widgets are then added to a dashboard where filters can be applied. These filters can allow a user to engage with the data in ways to find additional data insights. The raw data per widget can often be downloaded into CSV, PNG, and/or PDF file formats as well.

Figure 8: Screenshot of Malawi HIV data, with yearly disaggregates displayed

[16] SISENSE offers two data models (ElastiCubes and live models), depending on the type of data analysis required, including size of datasets and real time updates required.

[17] 'R' is statistical analysis software.



Widget designs

SISENSE offers a range of charts, graphs and maps for designers to use to create widgets. There are sixteen different widget types, such as heatmaps, pie and bar charts, scatter charts and maps, etc. Data can also be displayed as a pivot, a regular table, or heat map. The software offers a widget wizard to help users who are not familiar with creating widgets in SISENSE.

10.2. TECHNOLOGY SELECTION AND DESIGN ELEMENTS

The design of the technology architecture for the Health Situation Room has always included the plan for the eventual hosting and management of the HSR by host country Health Informatics teams or similar. Each country has its own database at UNAIDS Geneva, allowing for increased data security and ease of migration to the source country.

iVEDiX vs SISENSE vs UNAIDS Health Situation Room requirements

The original platform chosen (in 2015) was called iVEDiX. In June/July 2019, the Health Situation Room was migrated to a new platform, SISENSE, driven predominantly by performance and functionality. There were concerns that iVEDiX offered reduced ability for countries to be able to access and maintain the systems. SISENSE offers more cloud-based management of their data models than the iVEDiX system, which was a major factor in the decision to move to SISENSE.

The following table outlines how each system measured up against key requirements of the UNAIDS Health Situation Room programme.

Table 7: Comparison table between iVEDiX and SISENSE

Requirement	iVEDiX	SISENSE
Data is sourced from national systems…	…and an interim storage is on UNAIDS server, visualising data on HSR platform.	…and interim storage is in the cloud, visualising data on HSR platform.

The first-year cost of the platform is covered by UNAIDS…	…and from second year onwards the costs are dependent on the use and adjustments to the platform: range of USD0–9000, or more if use is expanded.	…and from second year the costs are fixed at USD25,000 per year.
The indicator adjustments…	…are done between the 3 parties: country (select indicators, administer reports), UNAIDS (administer the server and data flow), and iVEDiX (configure the platform, and support publisher).	…are done between 2 parties: country (administer indicators, reports and SISENSE), UNAIDS (administer the data flow, support platform).
The visualization platform…	…is an application installable on a laptop (Windows) or a tablet (Android, iOS, with offline capability).	…is used on an internet browser (Software as a Service).

Hosting requirements

SISENSE can be hosted on Linux or Microsoft Windows, with the minimum system (hardware and software) requirements fairly accessible to country governments who are already managing other data systems such as DHIS2 instances.

Access requirements

SISENSE requires internet connectivity to access the software for managing, designing and viewing dashboards. Access to SISENSE also requires a license. The current contract between UNAIDS and SISENSE establishes approximately 1,000 licenses in total, or approximately 140 licenses per country.

SISENSE system requires the following minimum software/hardware infrastructure to access the data dashboards.

- Web – HTML5[18] compliant web browser (Internet Explorer 11, Google Chrome, Firefox, Safari version 7 and higher); and
- Mobile App - Phone and Android (requires iOS 9 or later, supported iPhone 5 device or higher; requires Android versions 4.4 or later).

Roles and permissions

The UNAIDS Health Situation Room uses two main elements – roles and user groups – in the SISENSE system to control access and permissions to data and dashboards. In the current set-up, as there is one SISENSE system for multiple countries, meaning one user management set up for all 9 countries, the UNAIDS ICT team must restrict access for most users to only the country they are assigned to/represent. In addition, there are specific activities (permissions) that need to be controlled, such as view only, create dashboards, add new data.

Each user is assigned a role which sets their permissions for editing and each is added to at least one group which provides access to country specific datasets and dashboards. Access

[18] Hypertext Markup Language.

and permissions are identical on the web and the mobile application. These permissions can be fine-tuned and have more groups with granular permissions, but there are currently no specific needs requested by the countries.

Health Situation Room System-wide Default Roles

Table 8 shows the existing roles for all Health Situation Rooms currently in the SISENSE system.

Table 8: HSR user roles and system permissions

Role	System Permissions	Who can create role
Usage Analytics	Access usage of country analytics dashboards only	Admin
Viewer	View dashboards Export to PDF, CSV Create data alerts	Admin
(Dashboard) Designers	Add/Edit/Delete dashboards Migrate and share own dashboards	Admin
Data Designers	Upload/add data via CSV Add/Edit/Delete dashboard Manage servers	Admin
Data admin	Above with additional data permissions	Admin
Admin*	All (including add/edit users, user groups, roles, etc.)	Admin

***Note**: In the current access model, UNAIDS ICT team in Geneva is currently the administering body for all countries. Once the tool is handed over to the country, the admin will be a dedicated person in-country.

Health Situation Room User Groups

A user can be granted specific access to a specific dashboard, but most of the time, access is managed through user groups. Each user is added to user groups which define their access to country-specific dashboards and datasets. A user can belong to multiple user groups. Only System Administrators can create and assign user groups at this time.

Publishing and sharing

SISENSE offers email notifications to the users of a particular dashboard. The email can contain the up-to-date dashboard in the body of the email or as a PDF attachment. Users can also export a static copy of a dashboard for sending via email or other communications tools. This copy can be imported into another SISENSE account. Designers can also publish a SISENSE dashboard on a non-SISENSE environment (such as another website or application) by embedding a dashboard or widget.

Usage analytics

The SISENSE system provides core usage analytics dashboards. Metrics covered include number of users, dashboards viewed and interacted with, list of users by dashboard and date, average number of viewers, most popular dashboards, and page load time. This data can be

disaggregated by folders and user groups, user roles, date or date range, and dashboard. This data was used in the country status section for usage analysis.

Performance analytics

SISENSE also provides average load time and maximum dashboard load time. This information is used to manage the performance of the SISENSE dashboard for users. The evaluation team also performed a separate speed and download test of two sample pages for typical bandwidth ranges.

Figure 9: Example of a recent emailed dashboard

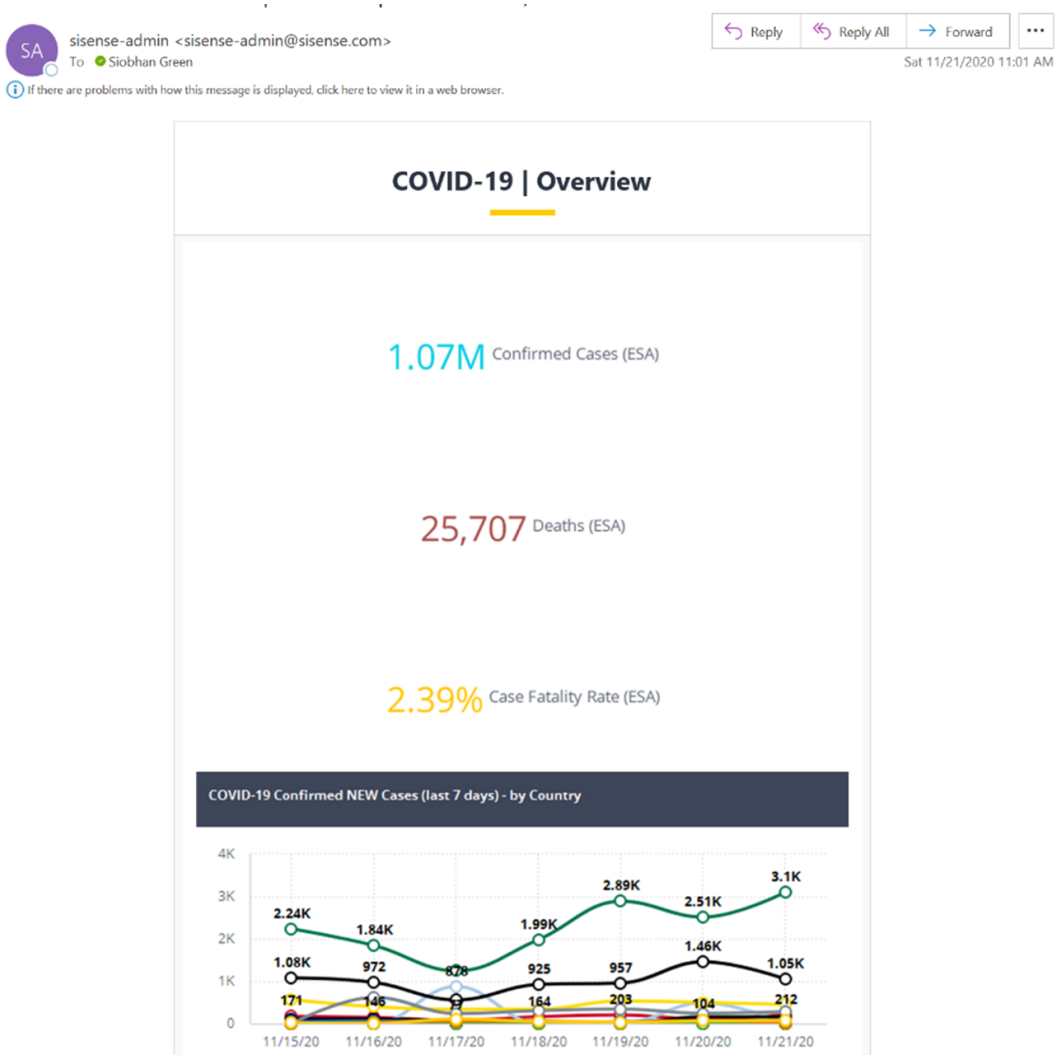
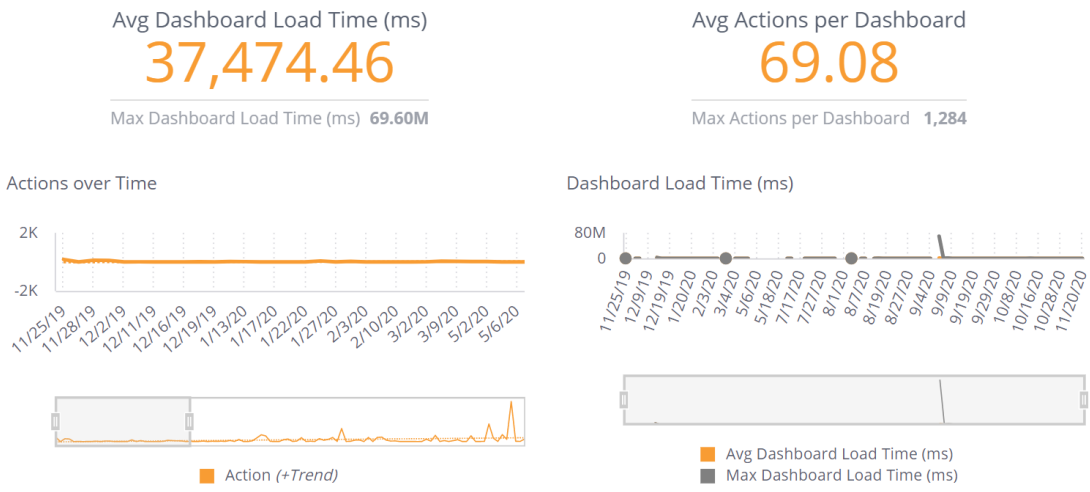


Figure 10: Screen shot of average download load time analytics (22 November 2020)



Available technical support documentation

The SISENSE product has a community of users that share a wide range of resources, as well as engage in dialogue to ask questions, solve challenges and share tips. The SISENSE website also offers training resources, user guides and information on help desk services. The help desk services scope includes the following related to features and functionality:

- How-to questions;
- Incorrect behaviour or results;
- Stability and performance issues;
- Bug reporting;
- Upgrade/installation troubleshooting;
- Custom scripting guidelines and examples (as available); and
- Assistance with supported plugins.

The website includes a 'creating dashboards' section as a user guide to help dashboard designers to create their own dashboards. When logged into the UNAIDS SISENSE platform, the home page links end users to the training resources, user guides and other documentation to support end users in performing various functions, including creating different types of charts and maps.

11. COUNTRY STATUS AND HISTORY

The evaluation team analyzed all nine countries mentioned as having active Health Situation Rooms in the Terms of Reference for the evaluation. Deep-dive analysis case studies were performed for four countries, while the other five had short summary analyses of the history, usage and structure.

However, not all countries had active Health Situation Rooms in SISENSE that the team could access; Namibia and Zambia Health Situation Room dashboards were unavailable for analysis during the period of the assessment, while Zambia did have usage metrics for some of the year. The team was informed that the Zambia Health Situation Room was unavailable due to revisions being performed in-country on their DHIS2, and Namibia had decided to not go forward with the Health Situation Room at the time of the evaluation.

11.1. SUMMARY OF THE NINE HEALTH SITUATION ROOMS

The following table summarizes the status of each of the Health Situation Rooms is based on the findings of the evaluation team.

Table 9: HSR status of activity in each country

Country / status	Country launch date	Local governance	Data sources	Number of dash-boards*
Côte d'Ivoire Active use[19]	March 2018 (iVEDiX) June 2019 (SISENSE)	Ministère de la Santé et de l´Hygiène Publique (MoH)	DHIS2	8
Kenya On hold	Sept 2015 (iVEDiX) June 2019 (SISENSE)	National AIDS Control Council (NACC)	KHIS (DHIS2), LMIS, AIDSInfo Estimates, and the Viral Load Database	22
Lesotho Low use	March 2018 (iVEDiX) March 2019 (SISENSE)	Ministry of Health	DHIS2 LMIS (pending)	9
Malawi Active use	April 2019 (SISENSE)	Ministry of Health and Population	DHIS2, DHAMIS (pending)	12
Mozambique To be launched	To be launched January 2021	Mozambique National AIDS Control Council (NACC), the GTM (Mozambique Government multi-sectoral working group for strategic information)	AIDSInfo HIV Estimates DHIS2 (pending)	
Namibia Moved to PEPFAR	Will not be launched	Ministry of Health and Social Services	Not launched	
Uganda On hold	March 2018 (iVEDiX) June 2019 (SISENSE)	Uganda AIDS Commission & Ministry of Health	DHIS2	13
Zambia On hold	March 2018 (iVEDiX) June 2019 (SISENSE)	Ministry of Health (MoH), and Zambia National AIDS Commission	DHIS2 and Spectrum	No info-rmation
Zimbabwe Active use	May 2016 (iVEDiX) July 2019 (SISENSE)	Ministry of Health and Child Care (MoHCC), M&E Directorate	DHIS2 and COVID, LMIS (pending)	11

**** Number of dashboards that were accessible to the evaluation team***

Data source acronyms: DHIS2 = District Health Information System, the country's repository for health indicators; LMIS = Logistics Management and information System, the country's repository for supplies and stockages; DHAMIS = Department of HIV/AIDS Management Information Systems (Malawi).

[19] Côte d'Ivoire (CIV) was an interesting case of stagnation and reinvigoration of the HSR Programme. The Centres for Disease Control and Prevention (CDC) evaluation performed in 2017–2018 identified stagnation of the HSR programme. However, by the time this current evaluation occurred, the CIV HSR had shown a great deal of reinvigoration, as demonstrated by number of dashboards created and accessed as well as number of users accessing the system. Unfortunately, as CIV was not a deep-dive country, the team was unable to assess the cause of this reinvigoration.

11.2. COUNTRY LEVEL USAGE

From the SISENSE data analytics dashboard for the **past 360 days** (22 November 2020), the following usage was identified.

Table 10: HSR usage metrics per country

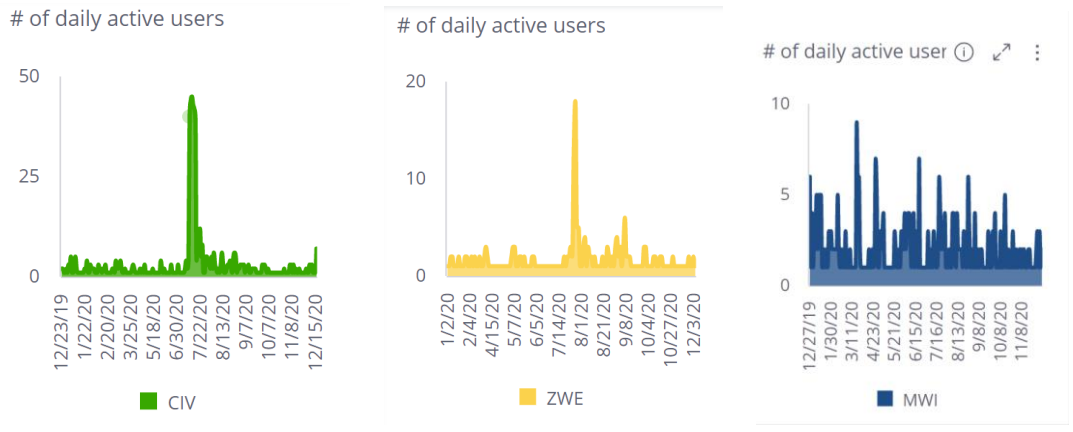
Country	Registered unique users	Average dashboards per user	# of UNAIDS users	Dashboard views
Côte d'Ivoire*	93	2.74	2	1617
Kenya*	15	1.12	2	103
Lesotho	2	n/a	0	14
Malawi*	70	2.68	4	316
Mozambique*	2			
Namibia	No information is available.			
Uganda	4	N/A	2	17
Zambia	10	N/A	2	33
Zimbabwe*	39	1.15	2	111

Note: The analytics sometimes included the evaluation team's visits. These countries are indicated with an asterisk *. Where possible, the evaluation team removed that data from the active users but was unable to remove it from the 'dashboard views'.

11.3. COUNTRY USAGE PATTERNS

In reviewing the three countries with enough significant usage (over 30 users), two patterns were discovered. The first shows a low level of daily usage and a profound spike around trainings, while the second pattern in Malawi shows higher daily usage, more spikes, and less range in usage of the system. The second pattern is more indicative of a system that is regularly accessed by a broader community of users.

Figure 11: 360 days of data usage by week for Côte d'Ivoire and Zimbabwe (16 December 2020)



Côte d'Ivoire | Zimbabwe | Malawi

11.4. COUNTRY DIGITAL HEALTH ENABLING ENVIRONMENTS

As mentioned in the previous section, the evaluation team performed a quick assessment of the maturity of the Health Situation Room countries' digital health ecosystem. A full assessment of the ecosystems is beyond the scope of this evaluation project, however, the evaluation team gathered available information for the case studies, outlined in detail in Annex VI.

The countries showed a range in health and digital ecosystems from advanced (Kenya, Uganda, Zimbabwe), to growing (Cote d'Ivoire, Malawi, Zambia), to nascent (Lesotho, Mozambique, Namibia).[20] Key factors include the establishment of an eHealth strategy and active governance structures, legislation and policies to promote ICTs, establishment of DHIS2 and associated infrastructure, level of internet access by government and other key stakeholders.

It is important to note that these factors are not determinative, as the three countries with the more advanced ecosystems did not have strong Health Situation Rooms, and two that were growing did. However, these ecosystems were a contributing factor in barriers and challenges across all Health Situation Room implementations, especially in the nascent countries.

11.5. SUMMARY OF FINDINGS FOR THE FOUR DEEP DIVES

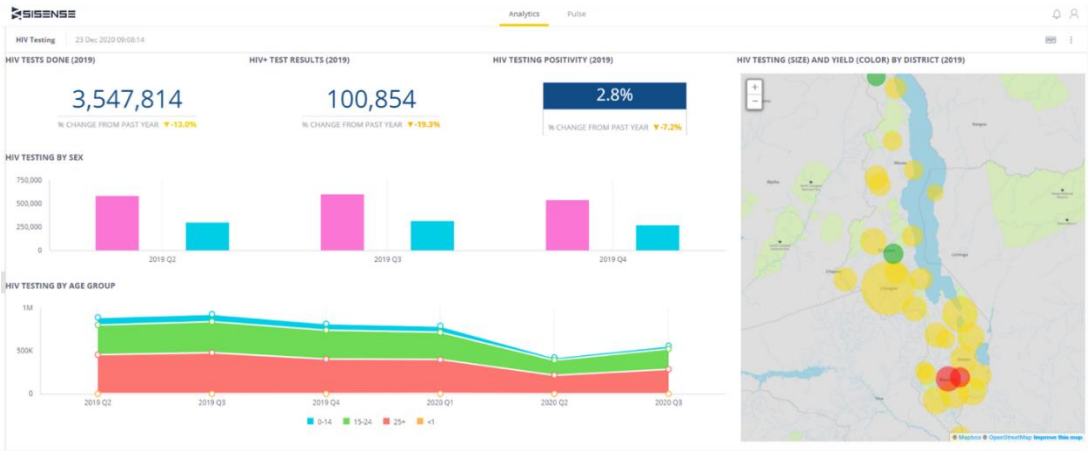
The evaluation team performed four case study analyses on Malawi (pilot), Kenya, Uganda, and Zimbabwe. Two of the four case studies had a launch on SISENSE in 2019 (Malawi and Zimbabwe) and two had begun with iVEDiX and then migrated to SISENSE in 2019. As seen from the country level usage and summary documents, Malawi and Zimbabwe have more usage and are considered active compared to Kenya and Uganda.

Malawi

Malawi was the first country to launch a SISENSE system from scratch; the launch was in April 2019. Managed by the Ministry of Health and Population, the Health Situation Room shows strong usage across multiple levels and across different sectors. Analysis of the usage metrics shows views by MoHP programmatic and monitoring and evaluation staff, District Health offices, community- based organizations (CBOs)/NGO service providers and donors. The Malawi TWG created dashboards to cover COVID, HIV, SRMNCAH, community health, and supply chain, pulling from DHIS2, DHS, health registers, and COVID-19 task force. The Health Situation Room addresses one major issue in Malawi – the proliferation of management information systems (MIS).

Figure 12: Malawi HIV testing dashboard October 2020

[20] It should be noted these rankings are not definitive but rather based on the team's cursory assessment of the different health ecosystems in different countries. The "rankings" are meant to be illustrative of relative strengths rather than precise.



COVID-19 has slowed the roll out and expansion of the Health Situation Room, including identifying additional user requirements. However, COVID-19 dashboards are highly valued as a fast way to send out daily updates on infections and the pandemic has greatly increased demands for data across the country.

It has a small but active user base across the entire country. Malawi involved HIV community-based organizations as key stakeholders from the launch. Several HIV networks as well as district health office staff were active users of the Health Situation Room. The interviewees shared that across all the different groups, the Health Situation Room dashboards were used for advocacy, course correction and performance improvement, proposal development, budgeting and further collaboration with partners. Having a reliable source of data evidence for discussion at district meetings was one example of data usage valued by different interviewees. As one interviewee put it, “Data that was previously compiled manually and shared quarterly at district meetings can be easily pulled from the Health Situation Room”.

Key concerns around the Health Situation Room involve data quality and data literacy. In addition, many users mentioned bandwidth and device access as major barriers to usage. Many users also asked for additional data to be pulled into the Health Situation Room for analysis. A further request was to make the data publicly available, especially to other NGOs, students and the general public.

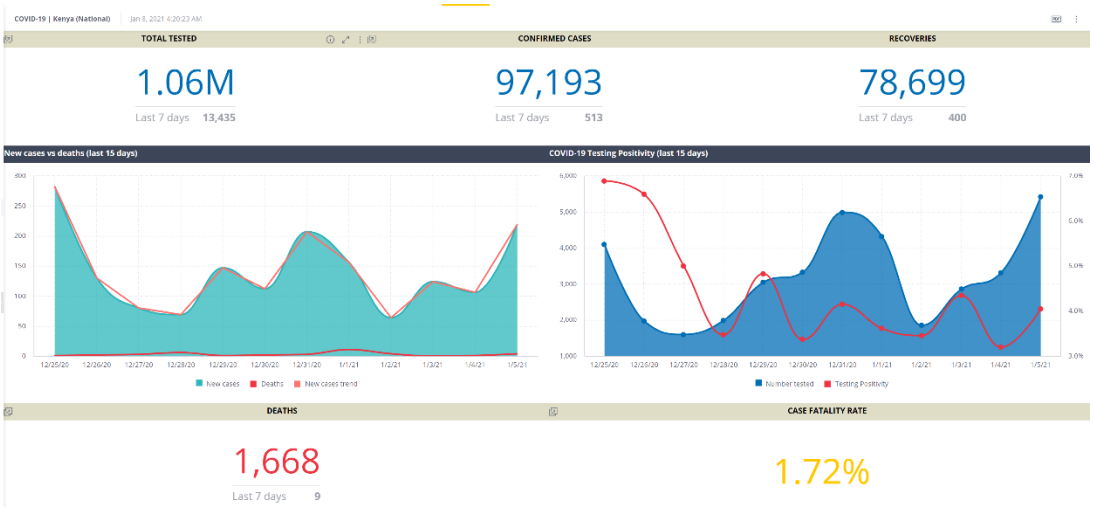
Country ownership and sustainability were seen in Malawi as the ability to physically manage the Health Situation Room with unlimited access to the data, unlimited ability to frame indicators, add new data and manage the software and data. They also suggested that NGOs, facility and district staff should be able to create new dashboards. Sustainability was seen as the ability to continue Health Situation Room management without the help of a donor (beyond financial support of the license).

Kenya

The Health Situation Room concept was developed in July 2014 in a meeting between the UNAIDS Executive Director and the President of Kenya. The Government of Kenya then worked with UNAIDS to further conceptualize the Health Situation Room and this was the first country to launch the programme in September 2015 using the iVEDiX platform. The President was involved in the official launch demonstrating political goodwill and is reported to still be supportive today.

Over the course of the Kenya Health Situation Room programme, there have been three versions: (1) UNAIDS hosted the data warehouse and database and Kenya used the iVEDiX platform for business intelligence and analytics (no longer active); (2) building on UNAIDS investments the Kenyan Health Situation Room transitioned into a country-owned and operated system with the National AIDS Control Council (NACC) hosting a local (i.e. national) database with a derivative of the iVEDiX platform for business intelligence and analytics (not accessed by or demonstrated to the evaluation team); and (3) third version is the Kenya HIV and Health Situation Room (HHSR) with UNAIDS hosting and leveraging prior investments in the data warehouse and database and using the SISENSE platform for business intelligence and analytics (accessed by the evaluation team).

Figure 13: Kenya HSR (UNAIDS version on SISENSE platform) COVID-19 Kenya (national) dashboard



There were inconsistencies with interviewees as to whether or not the Kenya Health Situation Room, owned by NACC using the iVEDiX platform, is currently online and the evaluation team was unable to directly verify the current status. Thus, there may be two live, concurrent versions of the Kenya Health Situation Room which raises questions on coordination, governance, usage, cost implications and potential duplication of efforts.

The NACC manages day to day operations of the Health Situation Room, including the IT platform (country owned and operated version of the iVEDiX platform) and the programmatic activities, such as developing dashboards, training end users and managing accounts. The Kenya HSR sub-workgroup oversees the Health Situation Room "change management" processes, including selection, adding and removing of indicators and coordination with source system owners. While UNAIDS assisted with developing an initial change management standard operating procedure in November 2018, it was noted in interviews with country stakeholders that additional formal change management processes need to be documented and executed at the country level on for managing connections to source systems and indicators.

Many interviewees expressed high interest and demand for a data analytics platform that could aggregate data from disparate systems and provide analytics tools, making the data more accessible to not just national government, but also county-level government. Success stories were cited by interviewees on the ability to access COVID-19 case information (UNAIDS

version on SISENSE platform), use in the industrial action strike to show where county services were being received or not, as well as helping to identify data quality issues in Mombasa.

Despite requests for utilization data from the Government of Kenya Health Situation Room on the country owned and operated version using the iVEDiX platform, limited information was provided by country interviewees. A file was provided by NACC that listed the county logins between an unknown date in 2018 and May 2019 with no further information on # of accounts or information on what data or dashboards were utilized. In reviewing the UNAIDS Health Situation Room for Kenya on the SISENSE platform, there has been relatively low usage in both the 360-day report and last 30-day report (excluding evaluation consultants).

There were many discrepancies between key stakeholders indicating a lack of clear communication and collaboration on the use of an analytical Health Situation Room tool for Kenya, as well as the need for a coherent and agreed upon long-term vision and roadmap.

Uganda

Uganda was an early adopter of the Health Situation Room, with discussion starting in 2017 and the National launch March 2018 in iVEDiX. The President and Minister of Health were highly invested in the Health Situation Room, and daily updates from the HSR were displayed on UNAIDS provided monitors in their offices. The Uganda AIDS Commission and the Ministry of Health share responsibility for the Health Situation Room governance. After the launch, the Government of Uganda was working on trainings and adding more data to the iVEDiX based system. During this period of time, the HSR TWG addressed existing challenges around data quality, access and interoperability, and data usage.

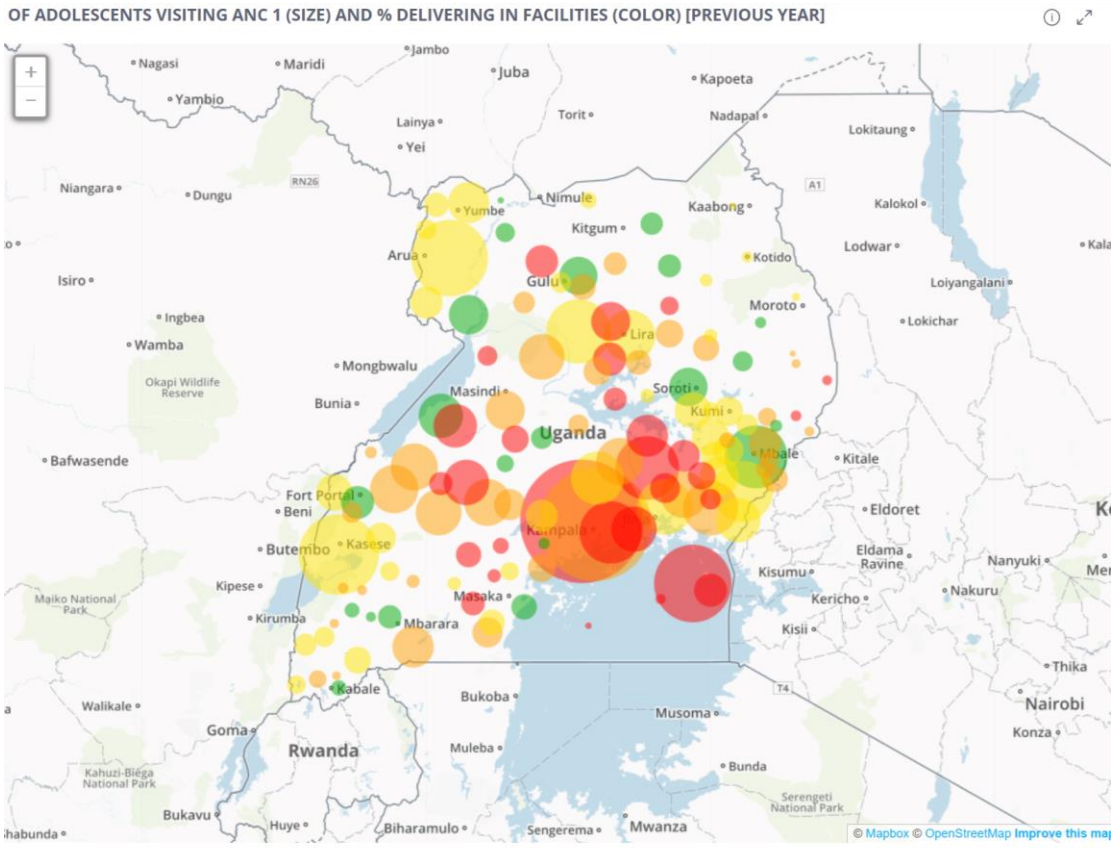
It is important to note that the Government of Uganda has a strict policy of hosting data in the country; in order to approve the Health Situation Room system, senior level approval was required. In addition, UNAIDS country office funded and mobilized resources to purchase servers to host the Health Situation Room at the Central Laboratory Services.

In May 2019, right as the UAC/MOH was about to roll out to stakeholders, iVEDiX software was unavailable due to a software issue. At the same time, UNAIDS HQ outlined to the Country office (ccing the Uganda HSR TWG) some of its concerns with iVEDiX and its decision to move to SISENSE for new Health Situation Rooms. It offered to Uganda the option to move from iVEDiX to SISENSE. Similar communications were sent to all currently hosted iVEDiX systems by the end of July.

There seems to have been a miscommunication between the Uganda HSR team and the UNAIDS HQ team on whether Uganda had the option of opting out of SISENSE or was required. The response from the country office and TWG was also unclear, thought the TWG expressed concerns and a lack of enthusiasm for the switch. To further investigate SISENSE, Uganda sent a senior team to South Africa to attend a five-day training on how to use the new platform.

A month later, the iVEDiX dashboards were no longer available to the Uganda team,[21] the transition of Uganda's dashboards and users was complete, and the new SISENSE based dashboard was made available to Uganda.

Figure 14: Uganda dashboard showing heat map of adolescent facility delivery rates



RED = LOWER ADOLESCENT FACILITY DELIVERY RATE (<50%) ; ORANGE = LOW-MIDDLE RATE (50% to 65%) ; YELLOW = MIDDLE-HIGH RATE (65% to 80%) ; GREEN = HIGHER ADOLESCENT FACILITY DELIVERY RATE (>80%)

While they technically accepted this transition, the Government of Uganda staff had concerns over the loss of momentum and investment they made in iVEDiX. The licensing cost was also a concern for long term sustainability. Several interviewed felt that they had not been sufficiently consulted on the process and felt it was imposed on them. They were also upset that SISENSE was not offered with local hosting and that they were not involved in the selection of the software. Finally, many were frustrated by additional delays in the roll out of the Health Situation Room as well as the confusion and lack of clear communication on the switch from iVEDiX to SISENSE. COVID-19 further delayed transition and roll out of the Health Situation Room nationally.

However, interviewees still acknowledged that there is a high demand for a data analytics platform, especially pulling data across the different data systems. The Government of Uganda is investing in eHealth and eGovernment strategies and programmes, and donors and other stakeholders are particularly interested in investing in improved data usage and analytics.

[21] iVEDiX dashboards were no longer available via the UNAIDS HQ programme. Kenya was able to retain access as they established a direct contract with iVEDiX separately from the UNAIDS HQ team.

Training was planned for October 2020, and several interviewees mentioned that they need to reassess the programme to restart and reinvigorate it.

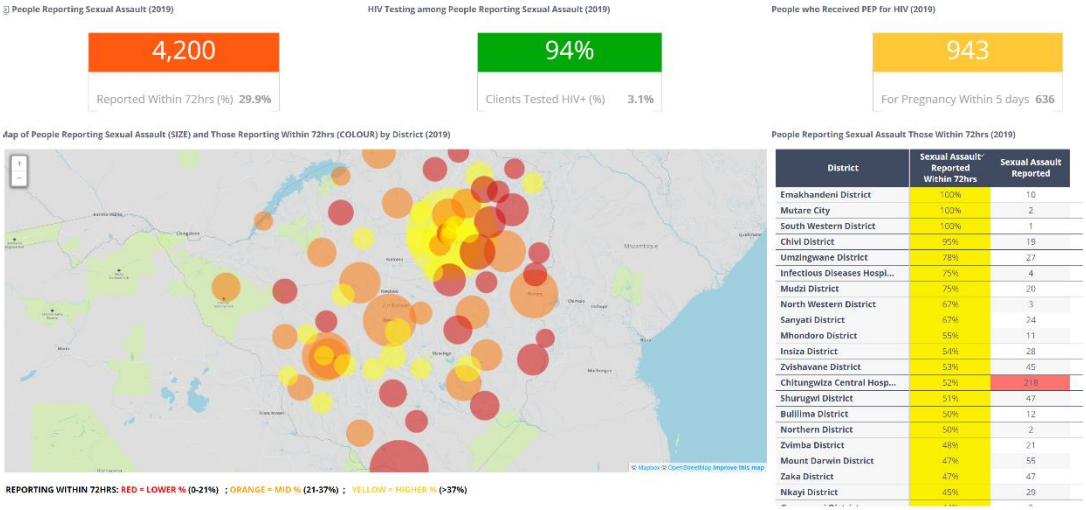
Zimbabwe

Zimbabwe started discussions around the Health Situation Room in May 2016 after a formal request for support was made by the Minister of Health and Child Care (MoHCC) to the then Executive Director of UNAIDS. Training was subsequently delivered to key staff in NACs and Ministry of Health on use and application of the iVEDiX system. The lead agency was the NACs and there was high demand and enthusiasm for the programme.

The formal launch of the Health Situation Room using SISENSE occurred in June 2019, this time with the MoHCC Directorate of Monitoring and Evaluation assuming oversight responsibilities. Thirty-nine people were trained as data managers, designers and users. However, it was reported that the launch had occurred before adequate governance systems were in place. At the time of the evaluation, the management team operated in a somewhat informal way resulting at times in less-than-optimal collaboration and as a result there had been a reported loss of momentum.

Zimbabwe was the first Health Situation Room to present data on sexual and gender-based violence.

Figure 15: Zimbabwe dashboard illustrating sexual violence incidents reported by clients at health facilities, provision of HIV testing and post-exposure prophylaxis



These dashboards did not have a high rate of usage and respondents from the Sexual and Reproductive Health (SRH) sector suggested this was because many SRH practitioners perceived the Health Situation Room to be predominantly about HIV and noted the lack of indicators on other SRH topics.

The most frequently visited dashboards were HIV and COVID-19 related, the latter largely due to mobile phone pop-ups which prompted users to view the site.

Usage of the Health Situation Room remains relatively low in large part due to high staff turnover resulting in uncertainty and a lack of concerted advocacy for the programme but also the lack of formal governance arrangements; some respondents suggested a steering

committee for this while others proposed integrating management of the Health Situation Room into existing MoHCC M&E directorate technical working groups.

The data ecosystem and organizational context in Zimbabwe also plays an important role. The MoHCC has recently published a new digital health strategy and is developing an electronic health records system while at the same time establishing a new department for heath informatics all of which are time consuming for the four lead individuals responsible for the Health Situation Room. At the same time, a pilot Community Treatment Observatory has been conducted, which may be highly relevant for the Health Situation Room but is not yet formally linked into it.

However, interviewees acknowledged that there remains a high demand for a data analytics platform, but for it to be sustainable more advocacy must be provided to show its added value to decision makers. In addition, there remains a need to roll out the Health Situation Room sub-nationally to provinces and districts as was planned but then halted due to COVID-19.

FINDINGS

The findings of the evaluation are provided according to the OECD/DAC criteria. They are synthesised from the stocktaking above, and the four-country deep-dive case studies, and the five lighter touch country reviews. Within each of the DAC Criteria, where possible, the findings are organized according to the three main themes in the key evaluation questions (KEQs) (Demand and Usage, Collaboration and Transparency, and Sustainability and Country Ownership). Annex II provides a mapping of where findings related to the evaluation sub-questions can be located in the report.

12. RELEVANCE

12.1. HIGHLY RELEVANT CONCEPTUALLY

The evaluation found that the concept of the Health Situation Room was highly relevant across all countries. Since its inception, interviewees and other documents showed clear recognition of the need and demand for enhanced digital data for health and its visualization has remained consistent. All countries assessed had national health information system policies and most were focusing on eHealth as part of a national strategy. Many had explicit digital health strategies which included the need for improved data analytics capacity, and the need to pull data out of different siloed health data systems.

12.2. LOW LOCAL AND REGIONAL RELEVANCE

Beyond this macro level policy alignment, the Health Situation Room was found to have a low level of local relevance as implemented. This finding is in part due to the fact that the programme is driven externally by UNAIDS HQ and Regional Support Teams and limited in-country support by UNAIDS country offices (predominantly driven by time/capacity constraints). As per the UNAIDS country concept notes and repeated by stakeholders in interviews for this evaluation, the strategic information advisers in-country had a role in providing technical support and adaptation to country context. However, the specifics of this support seem to have varied across countries, and the SI advisers are not accountable to the headquarters team on their success. The finding is also due to the fact that the evaluation team found inadequate attention to the diverse governance contexts (such as the impact of the host government owner of the Health Situation Room, as well as the specifics of digital health ecosystems) in each participating country. The relevance to the USAID country office was varied; some country offices saw the value and direct relevance to their work and others did not.

In addition, half of the regional actors interviewed noted that for the Health Situation Room to be relevant at regional level would require every country in the region to have an HSR. These interviewees agreed that presently the focus at country level was the most relevant to build data usage.

12.3. QUESTIONS ON THE ROLE OF UNAIDS AND BROADER HEALTH DATA

When assessing the relevance of the programme, the team also explored the fit between the role of UNAIDS and the broader area of digital health.

Expertise in HIV data systems

Clearly, UNAIDS' expertise in HIV data, and links with country HIV stakeholders whether NACs or HIV departments in a MoH, places it in an ideal position to lead on HIV data; it is also acknowledged that much can be done in this field which is as yet underexplored (viz community engagement and cross-sectoral HIV data). It has been noted, however, that other sectors outside that of health do not have the same level of digitization of their data, meaning that pulling their data into a Health Situation Room is problematic without investment in improving their digital data ecosystems.

Expansion to other health sectors

However, with the Health Situation Room moving from NAC to health and evolving to incorporate broader health issues (e.g. cholera, SGBV, mother and newborn child health) this arguably actually reduced the relevance of UNAIDS as the 'right' organization to manage such data systems. UNAIDS does not have as strong relationships with the MoHs as with NACs and does not have recognized expertise in non-HIV data areas. In addition, there are other global players (especially WHO) who are more natural leads in this area, creating a competitive environment that may throw up barriers or questions about the role of UNAIDS.

The push to move towards broader health coverage seemed to be linked to the priorities of the national government owner of the Health Situation Room; while this push is reflective of government ownership of the Health Situation Room as UNAIDS intended, what becomes less obvious is the role of UNAIDS in providing this expansion.

Other players in the digital health data space

A reality on the ground are the multiple other players with more experience and resources (such as the US Government and other bilaterals, other UN agencies, and foundations) already investing in this space and who may be better positioned to build sustainable digital health systems, as many have existing programmes in-country that are focused on improving data quality and usage.

The new and evolving context of increasing numbers of other actors creates a "competition" factor in countries where these other players would need to be taken into account if the decision is taken to continue to expand into other non-HIV healthcare areas; UNAIDS could play the role of neutral party across different competitors to pull different datasets together. However, this role would likely require increased time and resources focused on collaboration and negotiating access, particularly at the country level, and would require substantial commitment from the UNAIDS country offices and a strong awareness of the level of effort and staff skills needed.

13. EFFECTIVENESS

13.1. EFFECTIVE AT BUILDING DEMAND

The Health Situation Room was found to be effective in building demand for data analytics across countries.

Led discussions about improvements in data analytics

There was good evidence that the project's implementation had led to conversations about access to data, its quality, the value of visualization in the application of data in decision-making and the importance of interoperability. Analysis of the platform across countries showed HIV data as the most frequently accessed data together more recently with COVID-19 data; however, other health data (such as maternal health and malaria) was also frequently listed. The automatic COVID-19 alerts sent out by email were frequently cited as useful.

Effective at gaining high-level attention to data analytics

Health Situation Room launches were generally high-level, either presidential or ministerial, and therefore were able to mobilize attention and resources within host governments and partners that would likely have not been possible without such senior level attention or additional resources. Some country-level TWG interviewees mentioned they felt having high level attention created momentum and excitement around the Health Situation Room that helped build engagement and support across different levels.

Increased expectations led to disappointments

In some cases, however, it was felt that this high-level engagement built expectations and momentum for the project which in many cases could not be delivered or maintained, especially when faced with programmatic challenges (such as senior leadership shifts in Zimbabwe, transition of UNAIDS country staff, or the rapid software shift from iVEDiX to SISENSE).

13.2. OPPORTUNITIES WITH SIGNIFICANT CHALLENGES IN BUILDING USAGE

The evaluation acknowledges that systematic and measurable usage of data is an explicit part of the programme's design; as one team member said "Usage is foundational". SISENSE user analytics were a major source for evidence of data usage. As part of the evaluation analysis, the number of users, by role and organizational affiliation (if the information was available), dashboards viewed and frequency of views were all examined. Timelines of the views were also analysed to identify spikes (such as during and after training sessions). This data was supplemented with interviews with users and those providing technical support to users in the four deep-dive countries to further understand how the data is being used and what users would do without the Health Situation Room.

Universal agreement that usage of data is a foundational goal

It was universally appreciated by all evaluation stakeholders that access to data contained in the Health Situation Room is valuable and needed. There was also an agreement that different

users require different data depending on the level and type of decisions they are responsible for. Common goals across the countries for data usage were advocacy, planning, budgeting, performance monitoring and collaboration.

Evidence of use for quality improvement

Many of the participating countries mentioned that the Health Situation Room has been helpful in identifying poor data by making the data more visible and highlighting outliers. An example is Malawi cervical cancer rates among HIV positive women – one district, Machinga, reports 1840% of HIV positive women screened positive for cervical cancer – an impossible finding that is clearly erroneous.

Figure 16: Screenshot of Malawi screening positivity rate for cervical cancer (accessed 21 Nov 2020)

SCREENING POSITIVITY RATE BY DISTRICT (2019)

District name	% of Women Screened Positive	% of HIV+ Women Screened Positive
Balaka	0.0%	0.0%
Blantyre	1.8%	6.1%
Chikwawa	0.0%	0.0%
Chiradzulu	1.2%	1.4%
Chitipa	1.3%	2.6%
Dedza	4.6%	3.5%
Dowa	2.2%	1.3%
Karonga	1.5%	2.3%
Likoma	0.7%	1.1%
Lilongwe	3.2%	2.7%
Machinga	9.1%	1,840.0%
Mangochi	3.7%	5.2%

In Lesotho, interviewees mentioned that the Health Situation Room highlighted gaps in completeness and quality of their data, and led to a re-evaluation of their data collection and indicator processes. Interviewees from Côte d'Ivoire mentioned that the Health Situation Room helps with the "transparency of bad data" which helps managers identify where data quality issues are and target interventions to those areas.

Evidence of use for decision-making

Through in-depth interviews the evaluation identified some targeted usage; these positive examples of the application of Health Situation Room data were presented from the deep dives.

In Zimbabwe, one interviewee reported, 'Through HSR's geospatial analysis, we saw a concentration of HIV positive results in a specific area and this directed us to look at the health facilities to determine why.' This observation led to a verification trip where evaluators were able to identify that the spike in positive cases was related to artisanal miners and were able to plan accordingly.

In the same vein, COVID-19 data are automatically sent to email and mobile phones as updated data becomes available. COVID-19 dashboards showed the highest usage across all the dashboards, with HIV close behind. Several users mentioned they found COVID-19 data extremely helpful in their work. In Malawi and Zimbabwe, HIV programmers mentioned that they were using trend data combined with the Health Situation Room to determine impact on availability and uptake of HIV services.

In Malawi, respondents mentioned that the Health Situation Room had provided them with easier access to data that they needed in their day-to-day work and that previously was only available on paper or by visiting a ministry office. Two respondents at regional level noted the Health Situation Room being used to highlight gaps in data which needed to be filled.

Minimal evidence of systemic usage and application of data

In general, however, meaningful usage and application of data from the Health Situation Room was hard to find. Several countries had low to no usage of the SISENSE system and countries showing more active usage (Malawi, CIV) reported difficulties in linking data to decision-making by diverse user groups (especially in facilities and districts) beyond providing simple numbers.

The dashboards available are simple and similar across countries and there was no evidence that these visualizations added value to decision-making. It is important to note that meaningful data usage is a systemic issue addressing most data projects; the Health Situation Room to date shows potential to address data usage but has not yet provided evidence of systemic usage and application of data.[22]

One interviewee provided an example of a type of visualization presentation he could use in his work in stockage. He mentioned that knowing stockage levels at specific facilities is valuable, but that having a visualization that shows stockages levels by location on a map with transportation information (such as access to major roads) and average weekly/monthly usage by material can help district or facility planners to see where they can balance stocks across different locations. Layering this information with electronification and refrigeration capacity at different locations can also show potential storage locations for materials and pharmaceuticals which require cold chain storage (such as the COVID-19 vaccine or long-acting injectable ARTs).

Common barriers to usage identified across different countries

Lack of sufficient ICT devices and internet access, lack of sufficient licenses, and a lack of integration of data into current workflows (i.e. the day-to-day work of the decision makers) were all cited across different countries as barriers to usage of the Health Situation Room. This finding is compounded by the fact that, as one UNAIDS HQ team member stated, “the web

[22] Linking data to usage is a common systemic issue found in many data programmes beyond UNAIDS HSR; current best practices around improving data usage come from “user-centred design principles” – i.e. embedding data into existing workflows and making it available for key decision makers at different decision points. This approach requires in-depth understanding of country actors and often iterative assessments on the ground to provide insights that can be easily used to translate into decisions, especially when recipients of this data are not highly data literate.

embedding of the data was one of the selling points of SISENSE". However, due to local ICT conditions, a cloud-based delivery mechanism via the web is also problematic.

Even those interviewees who reported relatively regular usage tended to use the dashboards for simple numbers and not engage with the site for more complex insights combining the available data (such as filtering by location or dates). Questions also remain about the quality of data on the Health Situation Room which undermines its usefulness.

Central but unclear role of the UNAIDS strategic information advisers at the country level

One of the key assumptions and expectations by the UNAIDS HQ/RST staff was that the country SI adviser would identify and facilitate understanding of the local analytical context, needs and data, and promotion of programmatic usage of data across stakeholders. However, many SI advisers and country office directors mentioned the large amount of time it takes for the adviser to perform this role effectively. Some interviewees mentioned they did not necessarily have all the skills needed to design and implement a data analytics platform. SI advisers are predominantly experts in HIV data; they may not have ICT4D experience related to technology design or capacity-building in ICTs.

Speed tests and download across countries

The SISENSE system showed some slowness for 3G and 2G/Edge download and large sizes for uncached downloads. Some interviewees noted that the slowness of the system at times caused reduced access. In addition, many users in Malawi explained that they do not have access to work-provided internet, meaning they may need to use personal mobile data bundles.

13.3. COLLABORATION AND TRANSPARENCY WERE VALUED BUT INHIBITED

Collaboration and transparency were common goals across countries and partners for the Health Situation Room

Increased collaboration across ministries and partners was an explicit objective in most countries with many including outreach and access to civil society from the start, while usage objectives included review of performance metrics across partners.

Common challenges with Health Situation Rooms inhibited collaboration

Challenges which inhibited this collaboration included multiple players with competing data systems and investments (PEPFAR, WHO, DHIS2), overall poor data quality which reduced trust in data for accountability purposes, and limited access to non MoH staff and civil society representatives. Further confounding the effectiveness of the programme was the uneven governance at country level. This resulted in a lack of transparency; there were only a few standard indicator definitions (and some disagreement about their definitions), data-sharing agreements or requirements for access and no roadmaps defining a long-term vision. This made meaningful collaboration more difficult since there were few entry points for partners to provide input into strategic vision and investment.

Repeated examples of miscommunication between UNAIDS global Health Situation Room management and UNAIDS country experience

In multiple countries, there were significant discrepancies between UNAIDS global assessments of the situation on the ground and country reports from UNAIDS country staff and host government counterparts. For example, through the consultations for the evaluation, it was discovered that Kenya had three platforms and were intending to continue to use the iVEDiX system whereas the UNAIDS initiative had changed to a new provider. Uganda had very low usage of the Health Situation Room, and Namibia has decided to go in a new direction away from the Health Situation Room. None of these divergencies or activities was reported in the UNAIDS situation reports, documentation, nor highlighted by UNAIDS as part of the programme's context during the inception phase, and shows the lack of internal accountability mechanisms to identify these issues more routinely.

13.4. COUNTRY OWNERSHIP AND SUSTAINABILITY ARE VALUED BUT CHALLENGING

The evaluation also examined the extent to which country ownership had been achieved and the prospects of the programme's sustainability, partly judged by perceptions of ownership and partly by resource requirements.

Country ownership and sustainability seen as closely connected

All respondents saw country ownership and sustainability as closely connected particularly since ownership is required if a country is to advocate for future resources from within its public finances. Many respondents mentioned that when policy makers saw that the Health Situation Room is used and useful for decision-making, and is highly relevant for the specific country context, they would advocate for funding for staffing, hardware and software. However, without this advocacy, it would be very difficult to transition the Health Situation Room to country ownership.

Different definitions of country ownership depending on location

There were differing definitions of country ownership by host governments and UNAIDS with the former emphasising the importance of the system being under national stewardship using local systems and management, and the latter emphasising more the importance of country influence and guidance. This difference had consequences in Kenya, Namibia and Uganda all of which explored other options since they were either unable to use a platform hosted outside the country by law (Namibia) or felt uncomfortable with not having control of the platform (Kenya and Uganda). Several respondents also noted that the branding of SISENSE in the dashboards undermined country ownership; they expected to see the country flag or some other country logo in their views of the dashboards.

Common definition of sustainability including continuing usage and growth beyond donor support

There was greater consensus around the definitions of sustainability than country ownership. The definition included continued usage and growth beyond donor support, although some

expected that donor support would be needed to pay for some elements of the Health Situation Room for some time to come.

Conflation of sustainability of SISENSE with data analytics capacity

Across multiple interviewees and documents – especially those generated by UNAIDS – there was a tendency to conflate the sustainability of the SISENSE system (essentially the license fee) and the sustainability of data analytics capacity more broadly. Some, however, pointed out that the Health Situation Room allowed them to learn more about how a data analytics platform would work, and through it were able to identify areas of improvement, such as data quality and usage.

Technology selection influences a potential transfer to country management

An increasing number of countries require in-country data hosting, and this posed a barrier in some cases to agreeing to the Health Situation Room. Having the HSR data migratable to the country was seen as a prerequisite in these cases. The fact that the database architecture was structured so each country has its own database hosted at UNAIDS is a major benefit in the ease of migration. In addition, the SISENSE hardware and software requirements are not out of line with most MoH IT infrastructures. Finally, SISENSE has an active user community and good documentation, allowing for ease of management transition.

On the other hand, while countries have IT expertise, many Ministry of Health staff do not currently have the expertise needed to manage the SISENSE system in-country. The missing capacity includes sufficient IT systems administrators, data scientists, and data managers to manage and update the system on a regular basis. Much of the challenge is that MoH IT staff usually manage multiple data systems on different platforms; while learning a new platform is not beyond their abilities, they often lack the time and the funds for the training needed to learn a new one.

Country roadmaps and donor investments do not always coordinate

Finally, countries have digital health roadmaps and investments in existing systems. Many have standardized on particular platforms so they can realize economies of scale, especially when they lack sufficient IT staff to manage multiple platforms. In addition, in many countries, there has been a proliferation of donor-funded data management systems that do not necessarily adhere to this roadmap. These systems are often siloed and are at risk of abandonment when the donor funding ends.

14. EFFICIENCY

14.1. INSUFFICIENT RESOURCING UNDERMINED EFFICIENCY

Overall, the evaluation found that the Health Situation Room was significantly under resourced which also impacted on its effectiveness. For example, similar data analytics programmes such as PEPFAR's Foundry and USAID's investment in DHIS2 systems are routinely budgeted in the USD5,000,000 to USD20,000,000 range, focusing on one country. These

programmes often have on-the-ground implementation offices and staff who may be seconded to the MoH and/or directly support the programme design.[23]

The focus on costing tended to be on 'hard costs', for example software licensing, devices and monitors together with the cost of training and workshops. The costs of labour across the board were greatly underestimated. While the small but dedicated UNAIDS team (HQ/RST/country offices) achieved an impressive amount with very little, the demands outstripped the supply. This fact was made more evident at the departure of iVEDiX which had been providing training and support from its own business, research and development budgets.

14.2. LACK OF SPECIFIC SKILLS, KNOWLEDGE AND RESOURCES FOR SPECIFIC CONTEXTS

Furthermore, the resources available did not always match the specific country context. The following are skill areas that are often needed for successful Health Situation Room implementation at global and national level.

- **Needs assessment and capacity-building skills** for ICT4D elements including digital governance, user assessments, product design and management, and sustainability planning are essential. This role is important at the national as well as the global levels. Currently the SI department performs these tasks in partnership with the ICT team and the country SI advisers; however, it may be more efficient to have an ICT4D programme expert in this role, partnering with other teams.
- User-centred design skills are needed to help design and build dashboards that will be impactful. The ability to perform usability testing and other usage metric analysis is also important. This role has been performed by the RST support specialist and the iVEDiX partner but is often not found in country teams.
- In country facilitation and collaboration skills to build buy-in and governance. So far, this role has been performed by the country SI adviser and country office director, but these positions do not always have the time to devote to the Health Situation Room, especially when there are challenges.
- Public health data skills to ensure that visualizations are accurate displays of current public health decision-making priorities, and that the users are not misunderstanding the data. Currently the SI adviser with the MoH staff perform this role.
- Data management and quality improvement skills including experience with country data definitions, sources, quality issues and potential for interoperability across data sets, in order to create transforms and source new data for display. Currently, the TWG provides these roles.
- ICT skills specific to the platform to add more data, provide Tier 1 and 2 technical support to users, and maintain/host the servers. This role has predominantly been performed by a member of the TWG for Tier 1 support and ICT Team in Geneva for Tier 2 and server management.

[23] Finding precise comparisons is a challenge due to a lack of transparency over budgets. However, a cursory review of USAID investments in data platforms in Africa on USASpending.gov and ForeignAssistance.gov shows investments several orders of magnitude larger for one country vs the entire UNAIDS HSR budget which covers 9+ countries.

14.3. LACK OF INTEGRATION IN NON-UNAIDS DATA PROGRAMMES

Insufficient resourcing resulted in a lack of integration in non-UNAIDS data programmes. The lack of adequate resourcing also left the programme relying heavily on the team at HQ which again militated against its evolving into a more context-driven programme. This in turn limited the amount of attention to integration of the Health Situation Room with other national investments, as outlined below.

Ad hoc engagement with country-based partners and investments

That said, several ad hoc but responsive engagements were noted which might serve to enhance efficiencies: Namibia is using its Health Situation Room experience to work with PEPFAR's Foundry; Malawi is benefiting from Gates Foundation KUUNIKA work, Uganda from PEPFAR SITES/METS, and Kenya is working to link the Health Situation Room with the national Universal Health Coverage initiative.

Lack of strategic engagements with other data programmes nationally and regionally

As the purpose of the Health Situation Room is to pull data from different sources together, engagement with other activities which collect, and capture data is highly important to fill the Health Situation Room data repository. However, while the team found significant investments were being made in eGovernment/digital health in most of the focus countries, the Health Situation Room was not able to make best use of it as there was minimal strategic or ongoing engagement linking country HSR to other donor and country investments, such has donor investments in health informatics.

15.SUSTAINABILITY

15.1. NO SUSTAINABILITY OF HEALTH SITUATION ROOM PLATFORM

The definitions of sustainability matter when seeking to address this criterion. If the question is whether the Health Situation Room as a platform is sustainable without UNAIDS support the answer must be no. No country stated they were immediately willing to pay the USD25,000 as well as training, though many countries have said they would advocate another donor to fund it. Also, partially due to this cost and for other reasons, Kenya and Namibia are moving to different platforms. Zimbabwe requires more formal governance mechanisms if it is to maximise the potential of the Health Situation Room.

15.2. HIGH SUSTAINABILITY OF DATA ANALYTICS APPROACHES AND DEMAND

However, if the question is rather whether the objective of a data analytics platform can be realized if UNAIDS stops supporting the Health Situation Room the answer is highly likely. There is evidence which shows that Kenya is already investing in its own Health Situation Room (iVEDiX); countries are including data analytics platforms and approaches in their digital strategies; other donors are investing in these platforms, while new tools and platforms are coming on the market that may be cheaper and/or easier for countries to use.

15.3. ONGOING CHALLENGES WITH SUSTAINABILITY OF DATA SYSTEMS

Regardless of platform, there will be ongoing gaps with governance, data literacy, country allocation of sufficient resources and skills, data quality, and data usage. There is a role for UNAIDS to play a role in this area.

15.4. VALUABLE LESSONS IN HOW TO CREATE A DATA ANALYTICS PLATFORM

This demonstrates that the Health Situation Room experience has provided many decision makers with insights into how to establish and manage a data analytics platform, including discussions around quality and sharing of data.

15.5. SCALING OPPORTUNITIES AND WEAKNESSES

Further to this, the evaluation examined whether the programme could be scaled up, acknowledging the opportunities the Health Situation Room has opened up:

- There is an existing demand for HSRs from different countries;
- UNAIDS experience with the HSR is highly valuable;
- UNAIDS has useful expertise as a facilitator/coordinator in countries; and
- Some countries will need a managed HSR for their data analytics needs.

Against these opportunities, however, it is clear that management of the UNAIDS Health Situation Room at global level, as well as in many country offices, is already overstretched and without increased resourcing scale-up is unlikely. There is growing “competition” from other donors, a clear imperative to focus on and tailor inputs to the country political and organizational context, major ICT4D challenges (data quality, usage, ICT access) to any data management programme, and – equally important – an unclear strategic mandate of UNAIDS expansion into digital health beyond the area of HIV/AIDS.

16. EQUITY

16.1. DESPITE STRONG COMMITMENT, LITTLE EVIDENCE OF RESULTS

Despite strong commitment across all Health Situation Rooms, this area of inquiry yielded the least evidence in terms of results. There was no current evidence of the Health Situation Room directly achieving UNAIDS equity objectives, although it was acknowledged that the potential exists for this to happen, as with any data analytics tool. While the Health Situation Room disaggregations depend on existing country data, opportunities to focus more on inequity and its implications for policy making, for example analysis of the SGBV data in Zimbabwe, were not maximized due to the lack of linkage with the Ministry of Gender. This fact was also particularly salient around data for key populations which were not possible to find in any Health Situation Room. In part this relates to the sensitivity of such data and the legal context in each country, but given the focus on the Fast-Track approach and the need for this data, it was unexpected to find limited discussions on ways forward.

16.2. FEW SKILLS IN GENDER EQUALITY AND MINIMAL FEMALE LEADERSHIP

No gender equality skills were explicitly included in the HQ or country Health Situation Room teams. The evaluation found that the vast majority of those involved in the Health Situation Room are male, and female leadership was limited to one director in Zimbabwe. In Malawi, there were two women out of six – one expat and one technical support staff. In Uganda, there was only one woman listed as part of the team, also in technical support. Across the UNAIDS HQ and regions, there were three men and two women (one has recently departed) actively involved in the Health Situation Room. All of the country SI advisers were men.

In the dashboards, gender and age disaggregations were reliant on whether the host country's DHIS2 broke out data by those elements.

CONCLUSIONS

17. ENTHUSIASM AND APPETITE FOR DATA ANALYTICS

The Health Situation Room generated enthusiasm and appetite for data analytics. Based on the findings in relation to conceptual relevance, there was extensive evidence that stakeholders placed a high value on a data analytics platform that would pull data from different data systems. The objectives of the Health Situation Room are aligned with the views and needs of key informants and the national digital health strategies. In addition, there was a consistent understanding among stakeholders of how a data analytics platform can improve health outcomes by providing valuable data insights and provide opportunities for increased collaboration and transparency. Across the different sources of evidence for this evaluation, there were uniform expectations that data analytics provided by a visualization platform needed to contain a range of data from different sources, presented in different formats and for different audiences.

UNAIDS' initiation of the Health Situation Room was timely and relevant to the needs of stakeholders and generated significant excitement and interest. Expectations were raised and the Health Situation Room provided an opportunity for breaking down data siloes through cross-ministry collaboration. Stakeholders across the programme were keen to develop a data-generated 'single point of truth' on the situation of HIV and other related data in their countries.

There is also no doubt that the Health Situation Room implementing teams from HQ, regional and country levels achieved an extraordinary amount with relatively small resources. This is evident from the evolution of the platform itself and appreciated by Health Situation Room stakeholders (host country staff, UNAIDS staff, other partners) who expressed how impressed they were with the collaboration, effort and time that was invested.

18. PROGRAMME IS UNDER RESOURCED GIVEN ITS COMPLEXITY

According to the 2020 budget, the annual cost of the Health Situation Room programme is between USD600,000 and USD1,000,000. However, the true cost of the programme has been underestimated by not capturing the actual cost of labour and UNAIDS ICT resources, along with the contributions of time, ICTs and other resources contributed by key stakeholders.

In addition, programmes of similar implementation complexity such as DHIS2 or other HMIS elements , often have much larger budgets and in-country staffing. Other donors, such as PEPFAR and Global Fund, have invested much larger amounts of funding to support in-country investments in digital health. The number and type of

staff is small for the Health Situation Room programme, compared to other data projects.

19. BARRIERS TO IMPLEMENTATION WERE HIGHER THAN ANTICIPATED

Despite the hard work and dedication of this small team, the execution and implementation of the Health Situation Room programme has been much more complicated than anticipated by the design and available resources. While the Health Situation Room was highly successful at attaining high-level political support at the launch, there was also the danger of creating disappointment or frustration among stakeholders if the programme encountered problems in implementation.

The practical and political dimensions of national data contexts were underestimated and under-resourced due to the limited number of UNAIDS staff with the right skills in-country. For example, creating and sustaining the governance reference groups to steer the country Health Situation Room's roll out and implementation, was often more difficult in practice. Deciding where the HSR should 'sit' was challenging due to national dynamics. The fact that the Health Situation Room aimed to bring in wider datasets meant engaging with broader MoH stakeholders rather than only national AIDS commissions, bringing these political dimensions to the fore. Where the Health Situation Room sat within the MoH created further challenges when it was situated with the information management or IT departments and became distant from programming decisions.

Other structural tensions related to different priorities between countries and UNAIDS staff were also hard to overcome. As one member of the UNAIDS HQ team stated, "The data is country property, hence UNAIDS could not use it for its own purposes. This produces a dilemma: SI Evaluation wants to have countries' systems highly independent and customizable, but for ICT efficiencies in providing support (for administering the infrastructure and databases) it calls for centralized IT admin."

Different countries have vastly different ICT and data governance capacity, based on both income level and donor investments. In Mozambique, for example, there are two ICT staff able to work in the Health Situation Room. In Kenya, there are 15 NACC members on the TWG able to provide support to the HSR. The huge range of local capacity requires different strategic approaches at the country level, something that the Health Situation Room – being directed from Geneva – struggled to support. In addition, clearer communication on barriers, challenges, and new directions between UNAIDS country offices and HQ would have made tailored approaches easier to find.

One critical event in the life of the Health Situation Room highlighted the complexity of the programme. UNAIDS had selected iVEDiX as its initial vendor and had established six Health Situation Rooms using its software. However, the UNAIDS HSR team faced issues with performance and functionality with the software, and increasing challenges with the technical support offered by the company. As a result, SISENSE was selected as a replacement platform and implemented in March–June of 2019.

Changing software platforms is an expected part of any ICT4D project, and by itself should not cause any major challenge. However, UNAIDS underestimated the implications for partners of the software transition, especially the lack of consultation with existing Health Situation Room

owners. These owners understood neither the rationale nor the process for the change in vendor, and were unprepared for the rapid transition that took place. One country had invested significantly in hardware that was compatible with the original software and had not anticipated such a shift.

As UNAIDS had raised expectations with partners, they in turn had raised expectations among their national stakeholders. The HSR country owners were now faced with a situation of taking responsibility for financial investments and making decisions to build on that investment rather than write it off. In one country, the high-profile launch of the Health Situation Room had included introducing screens in government buildings and using tablets that displayed the infographics, which the new software platform did not accommodate. After the transition, the (by then) months-old data being displayed – or no data at all – became highly visible visual reminders of something having gone 'wrong' with the project and therefore the national investment. The political capital so enthusiastically generated, rapidly dissipated.

20. PROGRAMME DESIGN WAS INCOMPLETE AND LIMITED BY KEY GAPS

The description of the Health Situation Room's inception in this report notes that the programme started out with a two-page concept note based on a desire from the executive director. As a result, the programme evolved rather than being strategically planned, as evidenced by the lack of an explicit theory of change, monitoring and evaluation plan, and other gaps in the programme design.

A major gap identified was in digital development (also known as ICT4D) expertise. Digital development, as exemplified by the Principles for Digital Development, is a professional sector focused on the usage of ICTs for development objectives. Professionals in this space have experience in not only the technology or data, but also the intricacies of data governance, change management, digital strategy development, digital inclusion/equity considerations, appropriate resourcing, usage metrics, and sustainability of data systems.

While the project had extensive expertise in IT and SI (especially HIV data), there was no evidence of ICT4D expertise in any of the UNAIDS staff, at the global or the country level. Many times, SI staff have experience with some aspects of ICT4D (especially data quality and lifecycle elements), but often one person is insufficient to be able to address all the elements at a country level, especially when country capacity is low.

The combination of programme evolution, lack of ICT4D expertise, and limited resources resulted in a highly centralized IT and management structure. Limited experience and staff time resulted in not using existing metrics for performance monitoring; the current system's usage metrics are not being used to provide detailed usage statistics and have limitations due to quality concerns.

Country offices mentioned they spent much more time than anticipated in facilitating access to data and promoting the Health Situation Room, but this work is one of many responsibilities they were facing. In some cases, they did not have the expertise needed for the capacity-building of host country staff in data analytics or data management. Limited in-country

resources resulted in an inability for the programme to provide specific context-based integrations with national digital health strategies or other data investments. It also resulted in a lack of a monitoring plan or systematic user feedback loops to regularly check the relevance and utility of the programme.

21. DATA ENVIRONMENT AND ACTORS HAVE CHANGED

Since the Health Situation Room was conceived, the digital health ecosystem has expanded and changed. Many countries have developed national digital health plans and have built more capacity in data governance and ICTs. These countries have also significantly increased their ability to develop their own technological capacities in local hosting and systems design and management. National digital health strategies are helping streamline national digital investments by identifying standard platforms and frameworks, along with national standards for data structures. Local ICT firms have increasingly been used to build and support national and local government software, especially in Kenya, Uganda, and Zimbabwe.

Donors such as PEPFAR and Global Fund have invested substantial amounts of money, ICTs, and staff in many of these countries to build and expand on the role of data in decision-making. Other actors such as WHO and Africa Centres for Disease Control and Prevention (CDC) have been providing support for regional and global data standards, interoperability, and data sharing, including a global strategy on digital health systems.

Two growing issues in the space of health data are: 1) data sovereignty; and 2) data protection. These interrelated issues mean an increased requirement for data – especially sensitive and/or personally identifiable data – to be housed in-country rather than in donor-managed systems. Many countries have formal or informal policies that data must be hosted in-country.

Where countries are more advanced and have greater resources, they have seen enormous inward investments in the field of digitisation and digital responses, particularly in the health sector. UNAIDS' data analytics platform is now 'competing' with multi-million-dollar funding from philanthropy organizations, donor governments and private technology companies.

However, the advancements and investment opportunities are not true for all the countries that are part of the programme. There continue to be significant resource and skills constraints in some of them. These countries, with a willingness but lack of capacity, may be most in need of the support that UNAIDS can provide.

22. LEARNING FROM THE HEALTH SITUATION ROOM REMAINS VITAL

The Health Situation Room's successful roll-out and usage in some key countries such as Côte d'Ivoire and Malawi, provide an opportunity to continue strengthening national HIV data usage based on the learning from the programme to date. There are several countries that continue to be willing and enthusiastic to implement the Health Situation Room, and the main issue holding them back has been the interruption caused by COVID-19. Drawing on the lessons about national ownership and management, how to think about sustainability and the

many technical challenges faced in other countries, there remains the opportunity to support priority countries with the most limited data analytics capacity.

The Health Situation Room has been unsuccessful in some countries, however. And more broadly the learning from the HSR in all countries on issues such as co-design, ownership and sustainability provide further opportunities to consider the longer-term trajectory and the objectives of the Health Situation Room. Important questions have arisen about where and how UNAIDS could and should position itself in order to help countries achieve the objectives of the HSR. This means the door is open to UNAIDS taking on multiple different roles depending on the country context. As a technology platform provider, the Health Situation Room may provide a much-needed launch of HIV-related data visualisation for a country with high resource constraints. For countries that already have some capacity, but still not enough to source or create their own platform, the expertise of UNAIDS in supporting them to broker solutions with other donors or providers could place UNAIDS in a highly relevant convening role.

In all situations, UNAIDS brings its expertise in HIV data and its use in programmatic decision-making, and now brings its first-hand experience of the successes and challenges of implementing a data platform.

RECOMMENDATIONS

Table 11: Overview of recommendation 1 and prioritization

Recommendation	Implementer (audience)	Priority (high, medium, low)	Timeline for action (short term, medium term, long term)	Level of investment (high, medium, low)
Recommendation 1: Link the HSR to UNAIDS strategic role with a new theory of change	UNAIDS Senior Management	High	Short	Low
Define HSR scope within the new UNAIDS Global Strategy	UNAIDS Senior Management	High	Short	Low
Provide sufficient resources and partnerships	UNAIDS Senior Management	Medium	Medium (after first two)	Medium
Design a new theory of change linked with UNAIDS SI role	UNAIDS HSR team, UNAIDS country office	Medium	Medium (after first two)	Medium

Legend:	
Red	High
Yellow	Medium
Green	Low

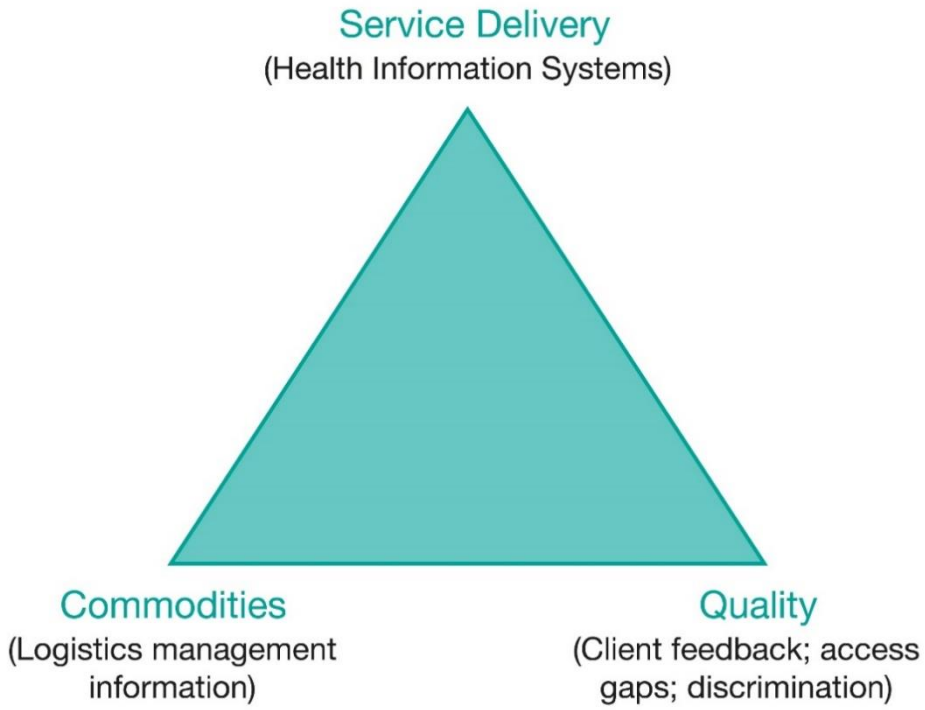
23. LINK TO UNAIDS' STRATEGIC ROLE WITH A NEW THEORY OF CHANGE

The first recommendation focusses on linking the Health Situation Room to UNAIDS' strategic role and creating a new theory of change to support it. The key questions raised by the evaluation relate to questions around how the Health Situation Room serves UNAIDS' mandate. The evaluation team found implied potential linkages as documented in the theory of change. However, this linkage needs to be updated, based on the new UNAIDS global strategy.

23.1. DEFINE SCOPE

The original HSR concept was promoted using a triangle of three complementary service delivery data sets: 1) commodities delivered (e.g. for prevention and treatment, sourcing LMIS); 2) services delivered (sourcing DHIS2 or alike); and 3) data on the quality of services, or concerns, as reported by the clients (using community monitoring data).

Figure 17: Health Situation Room original concept of service delivery



There is a need for better definition around the scope of the Health Situation Room to support UNAIDS' role, especially as there is pressure from Ministries of Health to expand the HSR to non-HIV sectors. The evaluation team identified concerns that this expansion into non-HIV areas both potentially dilutes the mandate as well as triggers competition from other players who are already better established and funded to provide this level of support.

There should also be investigation into supplemental data such as on stockages, facilities, and community data that can supplement data from DHIS2. Also, expanding data on key populations or HIV-related behaviours may also be of great use.

23.2. PROVIDE SUFFICIENT RESOURCES

Once the linkage with UNAIDS strategic mandate has been created, UNAIDS needs to decide whether they will be able to support the Health Situation Room at the level of resources required to implement the programme effectively. UNAIDS may also want to look at strategic partnerships with other donors who work in this space and decide clearly on what countries (and how many) they could support and how.

23.3. DESIGN A NEW THEORY OF CHANGE

A new theory of change, based on the strategic goals and level of resources available, will be an important element to help design a new Health Situation Room programme. The theory of change created for this assessment is a good launch point for the Health Situation Room's strategic design.

24. HEALTH SITUATION ROOM PROGRAMME DESIGN ELEMENTS

Table 12: Overview of recommendation 2 and prioritization

Recommendation	Implementer (audience)	Priority (high, medium, low)	Timeline for action (short term, medium term, long term)	Level of investment* (high, medium, low)
Recommendation 2: Amend and define HSR programme design elements	UNAIDS HSR team	Medium	Medium to long	Medium to high
Separate the strategic goal from implementation	UNAIDS HSR team	Medium	Medium to long	Low
Align with larger digital health ecosystem	UNAIDS HSR team, UNAIDS country office	Medium	Medium to long	Low
Expand and strengthen skills area	UNAIDS HSR team, UNAIDS country office	Medium	Medium to long	Medium
Build demand, usage, collaboration and transparency	UNAIDS HSR team, UNAIDS country office	Medium	Medium to long	High
Design for ownership and sustainability	UNAIDS HSR team, UNAIDS country office	Medium	Medium to long	Medium
Create a standard set of metrics	UNAIDS HSR team	Low	Long	Low
Design Option 1: UNAIDS does not offer a specific platform	UNAIDS HSR team	Low	Long	Medium
Design Option 2: UNAIDS offers SISENSE or similar platform	UNAIDS HSR team	Low	Long	High

24.1. SEPARATE THE STRATEGIC GOAL FROM IMPLEMENTATION

One recommendation for the Health Situation Room strategic design is to separate the strategic goal (increasing data analytics capacity) from implementation strategy (provide a data analytics platform). UNAIDS can support strategic goals without providing a data analytics platform. For example, UNAIDS can provide guidance, advocacy, and capacity support for investments in the use of data analytics for HIV analysis at the country level, potentially by identifying existing and potential investments by other donors and working within the local ecosystem so that the local context is taken into account. This guidance, however, will require more capacity in ICT4D by UNAIDS SI staff in-country.

24.2. ALIGN WITH THE LARGER DIGITAL HEALTH ECOSYSTEM

As mentioned previously, there have been significant investments in the larger digital health ecosystem, especially with COVID-19 currently requiring real-time data responses. UNAIDS Health Situation Room work must be more closely aligned with the various emerging strategies on the global and regional stage. For example, WHO has published the **Draft Global Strategy on Digital Health 2020–2025** and bilaterals – such as USAID – have issued a **draft Digital-Health Vision for Action** for comment and feedback.

Each country should have explicit linkages between the Health Situation Room with other investments in relevant health data systems, such as health system strengthening, performance quality improvement, and behaviour change programmes. Co-funding of key roles (see below) across different health informatics programmes may be a way to build capacity and sustainability.

24.3. EXPAND AND STRENGTHEN THE SKILL AREAS AVAILABLE

The following are skill areas that are needed for successful Health Situation Room implementation at global and national levels. These skills may be provided by UNAIDS staff or by consultants. The actual staffing will depend on the number of Health Situation Rooms, capacity of the host government partners, and availability of local partners.

- Ensure UNAIDS has ICT4D capacity to guide and support state of art technology decisions;
- ICT strategic design and implementation skills to be able to guide global approaches for governance, sustainability and resource mobilization. Additional ICT4D skills are needed at the country level for specific design and implementation;
- Needs assessment and capacity building skills for ICT4D elements including digital governance, user assessments, product design and management, and sustainability planning are essential;
- User-centred design skills are needed within UNAIDS to help design and build capacity in countries to develop dashboards that will be impactful. The ability to perform usability testing and other usage metric analysis is also important;
- In-country facilitation and collaboration skills to build buy in and governance;
- Public health data skills to ensure that visualizations are accurate displays of current public health decision-making priorities, and that the users are not misunderstanding the data;

- Data management skills including experience with country data definitions, sources, quality issues and potential for interoperability across data sets, in order to create transforms and source new data for display; and
- ICT skills specific to the platform to add more data, provide Tier 1 and 2 technical support to users, and maintain/host the servers.

24.4. BUILD DEMAND, USAGE, COLLABORATION AND TRANSPARENCY

There is a need to improve the analytics to be more responsive to the country needs, creating greater demand, and by improving the collaboration tools. For existing Health Situation Rooms, especially those which are on hold or where the status is unclear, it is recommended that UNAIDS facilitate/host a stakeholder workshop on the HSR in order to:

- Review lessons from UNAIDS HSR experience;
- Confirm commitment to a central data analytics platform;
- Identify/confirm leadership/governance structure of the HSR;
- Identify/confirm objectives, metrics of success, priorities for the HSR; and
- Outline roadmap/strategy to define the future state of the HSR.

These discussions must include key country stakeholders (including other donors) and be framed by existing national digital strategies (if they exist) as well as WHO's health strategy.

24.5. DESIGN FOR OWNERSHIP AND SUSTAINABILITY

For new Health Situation Rooms, it is recommended that UNAIDS support the selection of a data analytics platform in alignment with host government investments. Understanding that investing in existing platforms, servers, HR capacity and other donor investments will make sustainability and country ownership much more likely.

The Health Situation Room design and configuration approach should use Agile development, use Principles for Digital Development and other best ICT4D practices for data governance and user metrics. An important element is to build local capacity in user-centred design to help develop dashboards for usage.[24] UNAIDS can support the effectiveness of data analytics by building local capacity in data analytics/data science to create context appropriate dashboards. Countries also will need to be able to create outreach strategies to promote awareness and usage of the Health Situation Room and systems for monitoring, tracking and improving (across usage, capacity, outreach, and impact). UNAIDS can facilitate the support for these skills to be built within government ministries.

24.6. CREATE A STANDARD SET OF METRICS

Across the entire Health Situation Room programme, there should be a standard set of metrics used to monitor usage, data quality, capacity, outreach, and impact, including gender and

[24] User-centred design (UCD) is a key element of "Design with the User" Digital Principle. Considered best practice in ICT development, UCD starts with understanding the intended users of the application and integrates them directly into the design process to continually adapt the tool to their needs. While there are a few different approaches, in general UCD requires a range of skills such as sociology/anthropology research, graphic/user interface design, and usability testing for qualitative and quantitative analysis of user needs. https://www.interaction-design.org/literature/topics/user-centered-design

equity elements. These metrics should be used in partnership with the host governments to improve their own ability to monitor and improve their data systems.

24.7. DESIGN OPTION 1: UNAIDS DOES NOT OFFER A SPECIFIC PLATFORM

UNAIDS can act in the role of convenor for data analytics, not a provider of a specific platform. Country and global teams can provide expertise on data analytics/data quality improvements, facilitate data sharing and collaboration around data, and advocate for HIV data to be used beyond the health ministries (such as education, labour, transportation, etc.). The approach includes UNAIDS support, mentoring, and advice on procurement, requirements process, roadmap/strategy development, and set-up of data warehouse/database.

24.8. DESIGN OPTION 2: UNAIDS OFFERS SISENSE OR SIMILAR PLATFORM

A second option includes the above, as well as providing a platform (HQ managed) for countries who select it. The Health Situation Room can be an 'introductory' data analytics platform for countries that do not have the capacity nor the desire to host and manage their own analytics platforms. For countries who wish to eventually host and manage their own platforms, UNAIDS can help facilitate the development of a roadmap to local management (and possible transition).

Create a 'Step-by-Step' roadmap for country transition

In the cases where a country does decide to use the UNAIDS' platform, UNAIDS (HQ and country teams) must co-develop a roadmap for country transition at the start of the programme. The roadmap will be specific to the country, but will likely include the following elements:

- Clear definition of country ownership including government resourcing;
- Key stages with strategic goals and objectives;
- Contributions at each stage;
- Milestones that show completeness of a stage; and
- Metrics to meet milestones to progress to the next stage.

A hypothetical roadmap may look like this

Stage One: Goal is to establish a Health Situation Room

Objectives

- Establish an HSR to give the government capacity to provide data analytics to its staff and key stakeholders;
- Build capacity and enthusiasm in the country to use, maintain and design data tools for key users and stakeholders; and
- Determine the capacity of the country host to take over or establish their own data analytics platform.

Contributions

- UNAIDS HQ;
  - Host and manage HSR platform;
  - Provide Tier 2 technical support; and
  - Perform first round of training in-country or at distance.
- UNAIDS country office
  - Facilitate and support host country government partner buy-in;
  - Fundraise for additional support with other donors; and
  - Facilitate establishment of and support host country HSR governance structure.
- Host government partner;
  - Set up and manage governance structure including identification of indicators and users;
  - Provide data access;
  - Provide tier 1 technical support and other customer support services;
  - Provide devices, software, and internet to HSR users;
  - Provide second rounds of training in-country;
  - Track and promote usage by users of the HSR; and
  - Establish an M&E system for the HSR.

Milestones

- HSR established with dashboards;
- HSR Technical Working Group established and meeting regularly;
- Users of the HSR are accessing the system; and
- HSR is meeting M&E metrics.

Stage Two: Build capacity for Health Situation Room management and usage

Objectives

- Identify existing ICT and data capacity and gaps within the host country partner to manage the HSR without UNAIDS;
- Co-create a plan with UNAIDS on building capacity with metrics; and
- Establish partnerships with other data improvement projects to integrate HSR into their approaches.

Contributions

- UNAIDS HQ
  - Host and manage HSR platform;
  - Provide Tier 2 technical support;
  - Perform first round of training in-country or at distance; and

  - Provide guidance and input into capacity and gaps requirements.
- UNAIDS country office
  - Facilitate and support host country government identification of capacity and gaps;
  - Facilitate partnerships with other data improvement projects;
  - Support the co-creation of a capacity-building plan; and
  - Fundraise for additional support with other donors.
- Host government partner
  - Lead on identification of capacity and gaps;
  - Provide senior level support for capacity improvement identified by the assessment;
  - Link HSR to other data improvement projects;
  - Provide Tier 1 technical support and other customer support services;
  - Provide devices, software and internet to HSR users;
  - Provide second round of training in-country;
  - Track and promote usage by users of the HSR; and
  - Establish M&E system for the HSR.

Milestones

- HSR management capacity and gaps assessment and improvement plan developed;
- Key metrics for capacity improvement have been met;
- HSR Technical Working Group established and meeting regularly;
- Users of the HSR are accessing the system; and
- HSR is meeting M&E metrics.

Stage three: Detailed transition plan developed and executed

Objectives

- Design a detailed transition plan with ICT, data and governance elements broken out; and
- Include a change management process for migration of responsibility.

Contributions

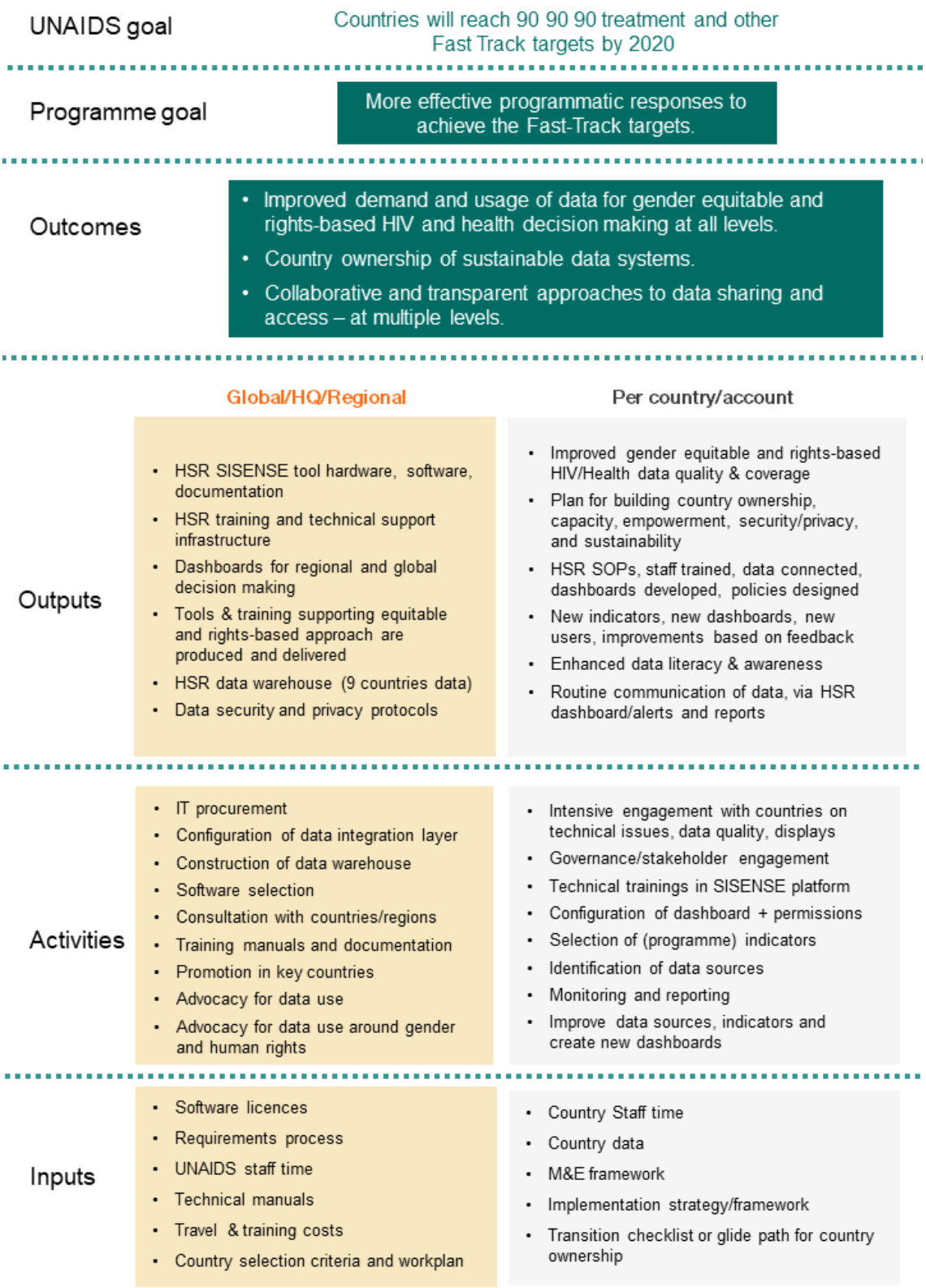
- UNAIDS HQ
  - Host and manage HSR platform;
  - Provide Tier 2 technical support;
  - Perform first round of training in-country or at distance; and
  - Provide guidance and support for transition of key elements.
- UNAIDS country office
  - Facilitate and support host country government to identify responsible parties for transition elements;
  - Provide input and support for change management process; and
  - Fundraise for additional support with other donors.
- Host government partner
  - Lead on identification of responsible parties for transition (i.e. who will “own” the different elements of HSR management);
  - Provide senior level support for continued support and investment in the HSR;
  - Provide staff and other resources to the HSR for migration, testing and change management;
  - Monitor transition for feedback and improvements;
  - Provide Tier 1 technical support and other customer support services;
  - Provide devices, software and internet to HSR users;

- Provide second rounds of training in-country;
- Track and promote usage by users of the HSR; and
- Establish M&E system for the HSR.

Milestones

- HSR management transitioned (different aspects may be transitioned at different times);
- Key metrics for transition have been met;
- HSR Technical Working Group fully responsible for HSR management;
- Users of the HSR are accessing the system; and
- HSR is meeting M&E metrics.

ANNEX I: THEORY OF CHANGE



ANNEX II: DETAILED EVALUATION QUESTIONS

The evaluation questions are reproduced here with "signposts" to guide the reader to where the information, evidence or discussion can be found in the report, including annexes.

Key evaluation questions related to the stocktaking activity

Current data ecosystem

1. What is the current data ecosystem in which the situation room exists globally? What other data systems does UNAIDS provide and how do they link to the situation room?	Section 2.3. Context Elements: Digital Health Ecosystems and ICT4D See also 2.8.4 Country digital health enabling environment Annex VI Digital Health Ecosystem
2. Who else provides similar tools to the situation room? How do they compare?	Section 3.1.3 Questions on the role of UNAIDS and broader health data Section 4.5 The data environment and actors have changed
3. Who else are users/stakeholders in the UNAIDS situation room globally?	Section 2.8 Country status and history
4. Are there global and multi-lateral strategic priorities around data that the situation room will be influenced by?	Section 2.3. Context elements: Digital health ecosystems and ICT4D See also 2.8.4 Country digital health enabling environments Annex VI Digital Health Ecosystem
5. How is UNAIDS' mandate to advocate and support countries to achieve the fast track target supported and benefited by the situation room? Challenged or threatened?	Section 3.1.3 Questions on the role of UNAIDS and broader health data Section 3.2.2 Opportunities mixed with significant challenges in building systemic and measurable usage Section 3.5 Equity

Situation Room programme background and technology architecture

1. What is the timeline of events for the situation room programme?	Section 2.1 History of the HSR
2. What are major accomplishments and challenges as defined by the situation room teams?	Section 3 Findings Section 4 Conclusions
3. What are all the different inputs, activities and resources required to stand up and maintain the situation rooms?	Section 2.6 Budget/cost of investment
4. What is the total cost of investment in the programme?	Section 2.6 Budget/cost of investment
5. What are the key requirements, data warehouse design, Extract, Transform, Load (ETL) approach, software access control layers, and core situation room functionality?	Section 2.7 Technology approach
6. What is the technology transition plan for new platforms? For migrating the system to countries or another partner?	Section 1.3.2 Limitations Section 2.7.2 Technology selection and design elements
7. What technical debt would need to be addressed in the next 5 years?	Section 5.2 (Recommendations) HSR programme design elements

Situation Room total cost of ownership/level of investment

1. What is the total cost of the situation room supported by UNAIDS, by the countries, and other potential costs if countries were to own/manage their own situation room?	Section 2.6 Budget/cost of investment Section 3.2.3 Collaboration and transparency were valued but inhibited
a. Financial costs: The total cost in labour and hard costs for the situation room (one-time and long-term investments). The evaluation team assessed financial costs by capturing labour and hard costs. To avoid requesting sensitive salary information, the evaluation team asked departments to provide salary ranges for different staff levels and estimates of the annual level of effort per role.	
b. Reputational/influence: The cost or benefit from the situation room in reputation and influence (i.e. the 'seat at the table' to get	

better access to data, influence the use of quality data indicators, and provide guidance on how to use data for equity and rights-based programming). Questions related to reputational/influence costs are addressed within the collaboration and transparency elements.	

Key evaluation questions related to demand and usage

How does the situation room support increased demand and usage of data to inform equitable, gender and rights-focused programming?

1. Global-level Questions

c. How is demand and usage of the situation room promoted by UNAIDS?	Section 2.8.2 Country level usage Section 2.8.3 Country usage patterns Section 3.2.1 Effective at building demand
d. How does the software platform support demand and usage?	Section 3.2.2 Opportunities mixed with significant challenge in building systemic and measurable usage

2. Regional-level Questions

e. How does the presence of the situation room support better data usage in a region?	Section 3.2.2 Opportunities mixed with significant challenge in building systemic and measurable usage

3. Country-level Questions

f. What dashboards have they created, using what data?	Section 2.8.1 Summary of the nine HSRs (for quantitative number of dashboards) Annex V Platform dashboards analysis See also country case studies (separate document)
g. How were created dashboards and data identified?	Section 2.4 Establishing a new HSR
h. Who are your 'core users' for the situation room?	Section 2.8 Country status and history
i. Are there users at a sub-national level? Outside the main 'owner' of the situation room?	Section 2.8 Country status and history

j. Are there situation room data visualization users who do not have access to the situation room website?	Section 2.8 Country status and history
k. Does the situation room include data from new sources (i.e. not DHIS2/HIV estimates)? i. Who identified this need? ii. How is this new data used for programming?	Section 3.2.4 Country ownership and sustainability are valued but challenging Section 3.3.3 Insufficient resourcing resulted in a lack of integration with non UNAIDS data programmes
l. Have you ever identified the need to change the way you manage data (collect, clean, store, share) based on your involvement with the situation room? i. What triggered the identification of the change? ii. Were you able to make the change? If so, what did you change?	Section 2.8.5 Summary of findings for the four deep dives
m. What were you not able to change? Why not?	

4. Dashboard-level Questions (per country)

a. Who is accessing this dashboard? How often?	Section 2.8 Country status and history See also country case studies (separate document)
b. How is this dashboard used for programming? i. Support the fast-track focus on population-based responses? ii. Support gender integration and equitable access? iii. Support rights-based decision-making?	Section 3.2.2 Opportunities mixed with significant challenge in building systemic and measurable usage Section 3.5 Equity

Key evaluation questions related to collaboration and transparency

How does situation room support collaborative and transparent approaches to data sharing and access – at multiple levels?

1. Global-level Questions

c. How is collaboration and transparency via the situation room promoted by UNAIDS?	Section 3.2.3 Collaboration and transparency were valued but inhibited
d. How does the software support collaboration and transparency?	

2. Regional-level Questions

e. How is information shared across multiple countries?	Section 3.1.2 Low local and regional relevance
a. How is this information used for decision-making and accountability?	Section 3.2.2 Opportunities mixed with significant challenge in building systemic and measurable usage

3. Country-level Questions

a. How is collaboration and transparency defined and implemented by the country?	Section 3.2.3 Collaboration and transparency were valued but inhibited
b. Who are the key stakeholders and how do they contribute/provide accountability? Who are not yet but could/should be key stakeholders? (such as Ministry of Gender)	Section 3.1 Relevance
c. Who are the other donors and stakeholders in your data management?	Section 3.1 Relevance

4. Dashboard-level Questions

a. Who are other stakeholders who would be interested in this data (or in having additional data included)? How would they use it?	Section 3.2.1 Effective at building demand Section 3.2.3 Collaboration and transparency were valued but inhibited Section 4.5 The data environment and actors have changed
b. Who has access to this data? Is (some of) this data considered sensitive (due to political or stigma concerns)? How is this balanced with transparency?	Section 2.2.2 Programmatic rationale, context, criteria, and key assumptions and risks Section 4.5 The data environment and actors have changed

Key evaluation questions related to country ownership and sustainability

1. Global-level Questions

a. What is the set-up process for a new country situation room?	Section 2.4 Establishing a new HSR
b. What is the ongoing maintenance provided to a country situation room?	Section 2.5 Management structure Section 2.6 Budget/cost of investment
c. What are the legal agreements/memoranda of understanding (MOUs)/protocols agreed to with the host government?	Section 2.4 Establishing a new HSR

2. Regional-level Questions

a. What are the demands for regional data reporting and systems?	Section 3.1.2 Low local and regional relevance Section 3.2.2 Opportunities mixed with significant challenge in building systemic and measurable usage
b. What are the challenges for regional data systems?	

3. Country-level Questions

a. What is the governance structure used for the situation room?	Section 2.5 Management structure
b. Is the situation room team part of any other eGovernment programme/strategy?	Section 2.8 Country status and history
c. What staff do you have assigned to the situation room? Roles and level of effort?	Section 2.6.3 Labour requirements See also country case studies (separate document)
d. Do you have written standard operating procedures for the situation room?	See country case studies (separate document)
e. When you have a new staff person, how do you train them?	See country case studies (separate document)
f. How do you add a new user? Who gives permission for a new user and their role?	See country case studies (separate document)
g. What dashboards have you created (vs what UNAIDS created as part of start-up)?	See country case studies (separate document)
h. Have you identified new dashboards? Have you created them? If not, why not?	Section 2.8 Country status and history

i. Have you identified additional datasets to upload? Have you uploaded them? Asked UNAIDS to do so? Why?	Section 3.2.2 Opportunities mixed with significant challenges in building systemic and measurable usage
j. What is your definition of country ownership?	Section 3.2.4 Country ownership and sustainability are valued but challenging
k. What is your definition of sustainability?	Section 3.4 Sustainability
l. Are you able to pay for the appropriate types of labour from your existing budget and/or successfully advocate for such budgets?	Section 3.4 Sustainability
m. Are you able to pay for hard costs (licensing, hardware) and/or successfully advocate for such budgets?	Section 3.4 Sustainability
n. Does your department/ministry have a successful example of transitioning an ICT platform to your government staff?	Section 2.8 Country status and history
o. Where do you see the situation room or similar types of visualization tools in 5 years?	Section 3.2.1 Effective at building demand

ANNEX III: EVALUATION PARTICIPANTS

Name	Organization	Title
GLOBAL		
Taavi Erkkola	UNAIDS	Workstream Lead, Monitoring and Reporting
Alex Allouin	UNAIDS	Systems Manager, ITC
Savjeet Brar	UNAIDS (formerly)	Statistics Officer
Mary Mahy	UNAIDS	Team Leader, Epidemiology
Côte d'Ivoire		
Brigitte Quenum	UNAIDS	Country Director
Ramata Couliby Epse Sarassoro	UNAIDS	Strategic Information Adviser
Bléhoué Bleoue	UNAIDS	Consultant en appui au CoAg
Kenya		
Jantine Jacobi	UNAIDS	Representative to the European Union
Medhin Tsehaiu	UNAIDS	Country Director
Henry Damisoni	UNAIDS	Senior Strategic Information Adviser
Peter Young	CDC	Epidemiologist
Davies Kumanga	CDC	CDC Kenya
Joe Barker	CDC	Division Chief
Joshua Gitonga	NACC	Strategic Information Manager
Nelly Egehiza	NACC	Regional Data Officer
George Onyango	NACC	Situation Room Manager
Alex Kariuki	NACC	Head, Management Information Systems
Dr. Violet Oramisi	NASCOP	Programme Manager, Strategic Information Research Implementation (SIT)
Stephen Chege	MoH	Lamu County Health Records and Information Officer
Carol Ngunu	MoH	Nairobi County AIDS and STI Coordinator
Nelson Otuoma	NEPHAK	Director
Dr. Winifred Mutuku	Kenyatta University	Lecturer
Margaret Ndubi	Global Fund, The National Treasury	Programme Officer (M&E)
Dorothy Onyango	WOFAK	Chief Executive Officer
Dr. Rudolf Richard Eggers	WHO	Country Director
Dr. Christine Kisia	WHO	National Health Promotion Officer

Nelson Otuoma	NEPHAK	Executive Director
Reuben Vellenga (in place of Siddharth Chatterjee)	UN	Resident Coordinator
Rose Nzioka	Palladium	Chief of Party
Allan Maleche	Kelin Kenya	Executive Director
Jeremiah Mumo	MoH	Health Information Officer
Lesotho		
Pepukai Chikukwa	UNAIDS	Former Strategic Information Adviser
Lethola Mafisa	UNAIDS	Programme Officer
Malawi		
Boaz Cheluget	UNAIDS	Strategic Information Adviser/Project Manager
Emmanuel Zenengeya	National AIDS Commission (NAC)	Head of Monitoring and Evaluation
Kennedy Kanyimbo	Ministry of Health-Quality Management Directorate (QMD)	Situation Room Focal Point
Dr. Rose Nyirenda	Ministry of Health – Dept. of HIV/AIDS	Director
Blessings Kamanga	Ministry of Health – Central M&E Division (CMED)	DHIS2 Programmer
Grace Banda	Ministry of Health (MoH)	ICT Systems Analyst
Paul Manyamba	National Association of People Living with HIV/AIDS in Malawi (NAPHAM)	Programme Manager
Yon Antonio	Malawi National AIDS Society (MANASO)	Project Coordinator
Chimango Munthali	Right to Care	Senior SI Technical Adviser
Simion Manda	Ministry of Health (MoH)	ART Coordinator-Rumphi DHO
Innocent Mwaluka	Ministry of Health (MoH)	M&E Officer – TB Programme
Mercy Chinkhunda	Ministry of Health (MoH)	District Nursing Officer –Mzimba South DHO
Dr. Yonasi Chise	Ministry of Health (MoH)	Director of Health and Social Services – Salima DHO
James Chirombo	Malawi – Liverpool Wellcome Trust	Biostatistician
Dr. Malangizo Mbewe	Ministry of Health – Quality Management Department	Deputy Director
Vincent Masoo	Ministry of Health (MoH)	Health Management Information Systems (HMIS) Officer/Assistant Statistician
Lawrence Khonyongwa	Malawi Network of People Living with HIV/AIDS (MANET+)	Executive Director
Dr Andreas Jahn	Ministry of Health – Dept. of HIV/AIDS	M&E Lead Technical Adviser

Stone Mbiriyawanda	Ministry of Health – Dept. of HIV/AIDS	M&E Officer
Tiwonge Chimpandule	Ministry of Health – Dept. of HIV/AIDS	M&E Officer
Jacob Kawonga	Ministry of Health (MoH)	Senior M&E Adviser – Digital Health. On secondment at Palladium
Simon Ndira	Former GIZ Employee	Focal Point on Situation Room
Mozambique		
Makini Aida Sababu Boothe	UNAIDS	Strategic Information Adviser
Eva Kona Kiwango	UNAIDS	Country Director
Namibia		
Alt Zwandor	UNAIDS	Country Director
Ossenyo Yessifou Alladji	UNAIDS	Strategic Information Adviser
Uganda		
Kaurasa Kiragu	UNAIDS	Country Director
Jotham Mubangizi	UNAIDS	Strategic Information Adviser
Dr. Nelson Musoba	UAC	Director General UAC
Vincent Bagambe	UAC	Director
Peter Wakooba	UAC	Head M&E
Charles Otai	UAC	M&E Officer
Carol Kamasaka	Ministry of Health	DHIS2 Administrator
Andrew Prince Babigaisa	Ministry of Health	Data Warehouse Officer
Paul Mbaka	Ministry of Health	Director Health Informatics
Jackie Kataana		Embassy of Ireland
Dr. Eddie Mukooyo	UAC	Chairman (former Director Health Informatics)
Zambia		
Heston Phillips	UNAIDS	Strategic Information Adviser
Zimbabwe		
Martin Odiit	UNAIDS	Strategic Information Adviser, acting Country Director
Charles Birungi	UNAIDS	Fast Track Adviser
Dr Rugare Abigail Kangwende	MoHCC M&E Directorate	Director
Lloyd Machacha	MoHCC M&E Directorate	Deputy Director
Trymore Chawuwura	MoHCC IT	Deputy Director
Mr Manes Munyanyi	MoHCC HIS	Deputy Director HIS
Raymond Yekeye	NAC	Operational Director
Isaac Taramusi	NAC	M&E Officer
Tafadzwa Dzamara	MoHCC	Data Analyst

Chenjerai Sisimayi	World Bank	M&E
Ngonidzaishe Manika	MoHCC TB and HIV Unit	IT Officer
Ngwarai Sithole	MoHCC TB and HIV Unit	M&E Officer
Daniel Simiyoni	Provincial Health	Provincial database Officer
Trust Chiguvare	CDC	Strategic Information Officer
Rudo Mhonde	UNFPA	M&E Officer
Simon Mayanja	UNDP Global Fund	M&E
Pemberai Zambezi	FACT	M&E Officer
Simbarashe Mabaya	WHO	Medical Officer
Clarence Mademutsa	ZNNP+	Programme Officer
Brighton Muzavazi	MoHCC (Family Health/SRHR)	M&E Officer
Dr Owen Mugurungi	MoHCC AIDS and TB	Director
Admire Chiwamba	Ministry of Women's Affairs	Director M&E
REGIONAL		
Patrick Brenny	UNAIDS WCA	Director, Regional Support Team
Ehounoud Pascal Eby	UNAIDS WCA	Regional Strategic Information Adviser
Kow Nenyi Essel	UNAIDS WCA	Regional Strategic Information Adviser
Amala Reddy	UNAIDS ESA RST	Regional Strategic Information Adviser
Rangaiyan Gurumurthy	UNAIDS MENA	Director, Regional Support Team
Aeneas Chapinga Chuma	UNAIDS ESA	Director, Regional Support Team
Elisabeth Zishiri	ESA UNFPA	M&E specialist 2gether4SRH
Puveshni Crozier	ESA Regional UNICEF	SRH adviser 2gether4SRH
Francis Mangani	SIDA ESA	Regional Programme Manager
Hillary Kipruto	WHO ESA	Informatics and Knowledge Management
Duduzile Simelane	SADC	Director of Social and Human Development Directorate

ANNEX IV: DOCUMENTS CONSULTED

Global level	Global level documents included **introduction materials** for the whole of the programme and more recent guiding documents such as **Vision 2020**. The record of some **Steering Group meetings** and associated documentation from these meetings were also reviewed. Two key relevant assessments were also included in the review: the materials related to the **CDC Cooperation Agreement evaluation**, and the Partnership for Maternal, Newborn and Child Health **(PMNCH) case study** which included a focus on some of the Health Situation Rooms.
Regional level	The regional level documents included **annual updates and reports**, and the **training materials** for workshops. The collaboration between UNAIDS and CDC was recorded in **meeting notes**, and a range of materials presented at a **joint forum meeting**. A set of potential **indicators** (business matrix) was also developed at the regional level.
Country level	Documents that were aimed at the country level and that were common across all countries were **confidentiality protocols** and the **software guides and manuals.**
Côte d'Ivoire	Documents related to Côte d'Ivoire included **concept notes**, **activity reporting**, **communications materials**, **training materials**, **launch materials**, and the indicators (business matrix). In addition, there were explicit **terms of reference** for funding each year of the programme, and the **PMNCH case study** was also relevant.
Kenya	For the Kenya Health Situation Room, documentation included the draft **concept note**, **briefings**, **status updates**, **training materials and follow up actions**. There were also **communications materials** specifically prepared for the International AIDS Society. Alongside the **indicators** (business matrix), there were also **dashboard planning materials**, **usage analytics**, and service provider **contracts**.
Lesotho	In addition to the platform related documents such as the **indicators** (business matrix), **launch materials**, **presentation** and **training materials**, some government documentation was included, such as the **national M&E plan**.
Malawi	The documentation for Malawi was relatively diverse. The **PMNCH case study** was included with the **indicators** (business matrix), **launch materials** and **communication materials** plus the **concept note** and **mission reports**. There were also notes and outputs from the **working group (joint task team) meetings**, and **Training of Trainers materials**. **Target user lists** and **usage data** was provided. And a number of Government documents were included such as the **Digital Health Strategy** and **Quality Management Policy for the Health Sector**.
Mozambique	For Mozambique, the expected **indicators** (business matrix) and **concept note** were available, plus **status updates**. In addition there were materials related to **user roles and responsibilities** and **equipment specifications**.
Namibia	The **indicators** (business matrix) were available for Namibia with the **training materials**. In addition, there was a **technical assistance plan**, and annual reporting for the **UNAIDS-CDC Cooperative Agreement**.

Uganda	The documentation for Uganda also included the **concept note**, the **indicators** (business matrix), **launch materials**, and **training materials**. In addition to **status updates**, there were broader **communications materials**, and presentations on **technical knowledge transfer** and **resources**.
Zambia	The **indicators** (business matrix), **launch materials**, and **training materials** were accompanied by **stakeholder meeting notes** and a report of a **Zambia mission** (to Geneva). The Zambia documentation also included the **UNAIDS-CDC Cooperation Agreement evaluation documents**.
Zimbabwe	For Zimbabwe, the **indicators** (business matrix) and **launch materials** were reviewed with the **Training of Trainer materials**. There was also a **technical assistance plan** for Zimbabwe, and a draft **budget**. **Communication materials** – including **roadmap** – were available. Multiple Government **national policies and plans** were provided by the country office (SRH M&E, information security policy, HIS strategy, National Health Strategy).

ANNEX V: PLATFORM DASHBOARDS ANALYSIS

Usability Analysis

Design and layout issues

In reviewing the country folders and available dashboards, the following observations were noted:

- Some countries have more than one folder and the reason and distinctions are not always clear;
- The titles of dashboards are not always clear and descriptive. Not all the dashboard titles include a clear timestamp (i.e. Q1 2020) for the dashboards;
- There does not appear to be a standard naming convention for how dashboards are titled across countries;
- In some dashboards, the titles of the graphics are cut off;
- Colour of text is sometimes difficult to read (i.e. grey text with a red background);
- Information on the data sources and data elements/indicators is not provided on the dashboards. The information icon includes "widget details" which only provide the timestamp information;
- The dashboards include timestamps at the top, but it is unclear if an actual change was made to the data (updates, corrections, new data, etc.) or if the APIs simply verified the data is current information with no changes;
- Lack of country branding/logos – only SISENSE branding/logos;
- Dashboard owners are predominantly UNAIDS staff;
- It is also unclear if there are global or country specific data dictionaries to define data elements (for example, is Q1 representative of a Gregorian calendar year quarter, a government fiscal quarter, etc.); and
- Dashboards with tables have a difficult format for end users as the data is spread across many pages.

Visualization analysis

When looking across all Health Situation Room dashboards provided, there are a limited number of visualizations displayed. For example, while SISENSE documentation shows 16 different widget types (with several having subtypes), only 10 styles are used across all the dashboards. In addition, many dashboards are similar in format and presentation.

Data analytics complexity

Finally, while the team did not have access to the design views to be able to see underlying formulas or functions, a quick analysis of the data dashboards compared to the data matrices shows a minimal number of transforms were used on most of the data. Also, as the data in most countries is from one data source, the goal of mingling data together across multiple data systems was not shown in the majority of countries.

Speed and download analysis

Download speed is very important for engagement. Research has shown that delays of even one second can interrupt the thought process of users and will lead to lower usage and engagement.[25] Different speeds will engage users differently; to quote the Nielson Group, 0.1 seconds feels instantaneous; with a one second delay, users still feel in control; and under ten seconds will keep users' attention. Many African professionals are used to lags in the web, and therefore may have higher barriers to lost interest than European consumers who are used to fast download speeds. That said, slow download speeds are still impacting the engagement level of all users, even those used to slow speeds.

Another aspect examined in this section is page weight, namely looking at the amount of data needed to access the page. This metric is important as many of the African users of the Health Situation Room are using mobile data to access the site, either tethering to their main computers or accessing the site via the web app.

ITU data from 2019 shows Africa has the most expensive data costs for high use mobile broadband bundle (140 minutes of voice, 70 SMS and 1.5 GB of data) – USD53 compared to USD29.6 in Europe in PPP-USD.[26] Many Health Situation Room users mentioned they do not have regular internet access provided by their companies, especially when away from the office.

SISENSE Dashboard load stats

(1 November 2020)

Average dashboard load time

- Finding: 71 seconds (1 min 11 seconds) per dashboard
- Comment: 71 seconds is nearly 8x the slowest accessible speed for usability (10 seconds)

Maximum load time

- Finding: 46 hours (1 day 22 hours)
- Comment: This load time must be due to a server error, as nearly 2 days is not healthy load times

[25] Nielson Norman Group Website Response Times. https://www.nngroup.com/articles/website-response-times/

[26] Measuring Digital Development: IT Price Trends 1999. https://www.itu.int/en/ITU-D/Statistics/Documents/publications/prices2019/ITU_ICTpriceTrends_2019.pdf

Averages by country

The following table includes two main metrics – average load time and number of dashboards accessed during the same period. It is important to have both metrics because fewer dashboard access points will have faster download speed.

	CIV	KEN	LSO	MOZ	MWI	TZA	UGA	ZMB	ZWE
Average load time – in seconds	37	24	2	6.5	134	4.4	4.5	6.4	24
Number of dashboards	1659	129	13	11	396	7	16	33	222

Comment: Looking at the countries which have over 100 dashboards viewed in this period it is evident that Malawi is an outlier in extreme slowness of speed, but that CIV, Kenya, and Zimbabwe also have speeds that are problematic.

Download speeds per dashboard by different connection types.

We used Google Chrome developer tools to perform speed tests on two different dashboards. We chose Malawi for these dashboards due to their outlier status above.

Type of connection: ranging from high bandwidth (160Mbps) to 26/Edge 110Kbps.

Caching/No Caching: Webpages can reduce downloads and increase speeds by allowing for caching (or saving locally) some parts of the page that are unlikely to change.

Transferred: The amount of data transferred both cached and uncached. The first visit to a page will be “uncached” and subsequent visits should be cached, but if there are long periods of time between visits, many computers will no longer have the cache available.

Finish: when the page finishes downloading.

Malawi Community Health

https://situationroom.sisense.com/app/main#/dashboards/5cabd69ec8ae420d407df9d6

Home connection (no caching)	Low 4G (no caching)	Fast 3G	2G/Edge
150 MBPS (Fast.com)	8.2 Mbps	384Kbps	114 Kbps
4.4 MB transferred	4.4 MB transferred	4.4 MB (no cache) 184 kB (cached)	4.4 MB (no cache) 184 kB (cached)
Finish: 9.86 s	Finish: 12.60 s	Finish: 31.98 s NC Finish: 14.41 C	Finish: 5.8 min NC Finish: 24.76 s C

COVID-19 Overview dashboard

https://situationroom.sisense.com/app/main#/dashboards/5ea8a9e43a4c812c9c05975e

Home connection (no caching)	Fast 3G	Slow 3G	2G/Edge
150 Mbps (Fast.com)	384Kbps	128 Kbps	114 Kbps
4.5 MB transferred	4.5 MB (no cache) 206K (cached)	4.5 MB (no cache) 206K (cached)	4.5 MB (no cache) 206K (cached)
Finish: 11.39 s	Finish: 34.42 s NC Finish: 14.74 s C	Finish: 1.9 min NC Finish: 42.18 s C	Finish: 5.9 min NC Finish: 28.49s C

Comment 1: caching seems to be well optimized for the SISENSE website, as evidenced by the significant difference between uncached and cached data downloaded. Caching also significantly speeds up the finish time for slow downloads.

Comment 2: even with very fast bandwidth and low contention (i.e. other users on the site competing for server resources), download speeds for high bandwidth are at or beyond the maximum goal for speed (10 seconds). Low 4G (which is not universally available in many African countries) and fast 3G are also slow but close to the maximum. Other speeds which are more common in African countries result in very slow download speeds – 30 seconds to up to 5 minutes for one dashboard.

Comment 3: the uncached page weight (4.6MB per dashboard) is a little high; users on average have 1.5GB (or 1500MB) a bundle, especially when the user is using other websites and data applications in addition to SISENSE for their work. If a user were to visit all 12 dashboards for Malawi, for example, that one session would take a minimum of 55MB, or around 3 per cent of the monthly data bundle.

ANNEX VI: DIGITAL HEALTH ECOSYSTEM

Digital ecosystem in which the Health Situation Room exists

The UNAIDS HSR project has touched on a number of different aspects of a countries' digital ecosystem and more specifically their digital health enabling environments. This section provides background information and context that informed the evaluation and considerations for the future by comparing the implementation and design of individual country HSR implementations to the existing digital ecosystem.

Understanding a country's digital ecosystem is critical for projects such as the Health Situation Room as it provides context on where the key actors are in their digital transformation journey and where gaps persist that will impact the outcomes and sustainability of these digital investments. For example, a country whose health system is primarily paper based will lack the necessary IT infrastructure, workforce capacity, governance and leadership structures, as well as supportive policies to effectively manage an HSR without significant support from UNAIDS or another partner.

Digital ecosystem: current state

For decades, donors, implementing partners and other stakeholders have been investing in low and middle-income countries digital infrastructure (i.e. networks, computers, servers, etc.) and information technology (IT) systems to accelerate the attainment of the Sustainable Development Goals.[27]

The United States Agency for International Development has defined a **digital ecosystem** as, "The stakeholders, systems, and enabling environment that together empower people and communities to use digital technology to gain access to services, engage with each other, or pursue economic opportunities. Although certain aspects of the digital ecosystem have country-wide reach, other features differ across geographies or communities. The critical pillars of a digital ecosystem include the following: *(1) sound enabling environment and policy commitment; (2) robust and resilient digital infrastructure; (3) capable digital service-providers and workforce (e.g. both public and private institutions); and, (4) empowered end-users of digitally enabled services*."[28] There are other industry terms used to describe similar objectives, focusing on the intersection of technology and international development and the application of those technologies in programmes to support host countries. One example is '**information and communications technology for development' or ICT4D** which is the "*practice of utilizing technology to assist poor and marginalized people in developing countries*."[29]

Despite the recognition of the role IT plays as a cross-sector enabler for development, countries in the Africa region continue to experience fragmented data/IT systems, internet

[27] https://www.itu.int/en/ITU-D/ICT-Applications/Pages/ICT4SDG.aspx

[28] https://www.usaid.gov/sites/default/files/documents/15396/USAID_Digital_Strategy.pdf

[29] https://www.crs.org/our-work-overseas/ict4d

affordability challenges, and telecommunications infrastructure/connectivity barriers that prevent the uptake and effective use of IT.

Principles for digital development for application development

Figure 18: Principles for Digital Development

There are well documented industry best practices for how individual digital investments are designed, developed, implemented and maintained that enable scalability, usability and sustainability. The Principles for Digital Development,[30] maintained by DIAL, are nine living guidelines informed by the lessons learned by the development community and intended to help organizations integrate best practices to succeed in digital investments.

Additional information on the principles is provided below:[31]

[30] https://digitalprinciples.org

[31] ibid.

- **Design with the user:** User-centred design starts with getting to know the people you are designing for through conversation, observation and co-creation.
- Understand the existing ecosystem: Well-designed initiatives and digital tools consider the particular structures and needs that exist in each country, region and community.
- Design for scale: Achieving scale requires adoption beyond an initiatives pilot population and often necessitates securing funding or partners that take the initiative to new communities or regions.
- Build for sustainability: Building sustainable programmes, platforms and digital tools is essential to maintain user and stakeholder support, as well as to maximize long-term impact.
- Be data driven: When an initiative is data driven, quality information is available to the right people when they need it, and they are using those data to take action.
- Use open standards, open data, open source, and open innovation: An open approach to digital development can help to increase collaboration in the digital development community and avoid duplicating work that has already been done.
- Reuse and improve: Reusing and improving is about taking the work of the global development community further than any organization or programme can do alone.
- Address privacy and security: Addressing privacy and security in digital development involves careful consideration of which data are collected and how data are acquired, used, stored and shared.
- Be collaborative: Being collaborative means sharing information, insights, strategies and resources across projects, organizations and sectors, leading to increased efficiency and impact.

It is valuable for organizations undertaking digital projects in LMICs to align with the Principles for Digital Development where applicable during IT design, development and implementation phases, as well as assess/re-assess gaps and opportunities for improvement during operations and enhancement cycles to support long-term sustainability.

Digital health enabling environment

Digital health is an umbrella term that encompasses the use of an array of technologies and devices in health care, including mobile health (mhealth), telehealth/telemedicine, health information technology (health IT), health information management systems (HMIS), use of artificial intelligence, the use of block-chain technology, the use of business intelligence and analytics tools and more. Digital health is defined as "*the application of information and communications technologies, and the data they generate, to support informed decision-making and engagement by individuals, health providers, and health systems to increase demand, access, coverage, quality, and affordability of health and wellness for all*".[32]

As low and middle-income countries transition from paper to digital information and management systems, there are opportunities to use digital innovations to improve

[32] USAID, A Vision for Action in Digital health, 2020-2024

programme design, service delivery and individual and population health outcomes. However, a country's digital health enabling environment can underpin the success of digital health investments.

The digital health enabling environment consists of interrelated core building blocks necessary for maturing and sustaining a robust national digital health ecosystem and the individual digital health applications and systems. The World Health Organization (WHO) and the International Telecommunications Union (ITU) developed the National eHealth Strategy Toolkit[33] providing a standard framework and best practices for addressing the building blocks at a country-level. The framework includes the following building blocks:[34]

- **Leadership and governance**: Coordination of digital health investments and strategic planning activities;
- Strategy and investment: Organizing and prioritizing investments and plans for a country's digital health environment;
- Legislation, policy and compliance: Policies and legislation that support and align with the digital health strategy and advance the enabling environment;
- Services and applications: Portfolio of digital health services and applications;
- Standards and interoperability: Standards needed to advance standardized collection and exchange of health data across disparate IT systems, vendors and organizations;
- Infrastructure: Physical infrastructure (i.e. networks, servers), equipment (i.e. phones, computers), as well as, reusable software and services (e.g. identity management); and
- Workforce: Digital literacy and capacity of the health workforce to utilize digital tools.

When these building blocks are addressed in a coordinated way, they influence the adoption and use of digital health systems in health programmes. Before implementing a digital health system in a country, it is important to assess the digital health enabling environment to understand the local context and level of maturity, as well as the landscape of existing digital health investments.

[33] https://www.itu.int/pub/D-STR-E_HEALTH.05-2012

[34] ibid.

Country digital health enabling environments

Côte d'Ivoire

In 2012, Côte d'Ivoire's Ministry of Health and Public Hygiene adopted the National Plan of Development for eHealth to set national policy and for the implementation of eHealth solutions in the country.[35] The national routine health information management system platform in use is DHIS2 and there is a national data warehouse. DHIS2 has been deployed to all regions and districts in the country with the inclusion of five health programmes – HIV, tuberculosis, nutrition, malaria and maternal and child health.[36] The country is working towards expanding DHIS2 to facilities, building workforce capacity enabling interoperability/data exchange between national digital health systems, and expanding use and functionality of electronic medical records.[37]

Kenya

Kenya is a leader in digital health in the sub-Sahara Africa region and has invested over many years in establishing digital infrastructures, digital health systems, developing policies and strategies, as well as building internal leadership and governance. Kenya's digital health policies and strategic plans are critical to creating an enabling environment that fosters the progress and scale of health information systems in the country. Findings from a Kenya digital health landscape assessment[38] indicated that, despite supportive digital health policies and strategies, many health information subsystems remain siloed owing to some entities not adopting standards and variable data quality that limits or prevents integration. In addition, there are gaps in digital health capacity at the county level, a need to strengthen the data sharing culture, as well as private sector engagement.

Lesotho

To support the advancement of the digital health enabling environment, the Lesotho Ministry of Health developed the National eHealth Strategy 2019–2023 which provides guidance to the government and partners on eHealth priorities to improve service delivery and health outcomes. The National eHealth Strategy includes information on a 2016 assessment conducted by WHO which concluded that the country is in the developing and build-up phase for digital health, characterized by owning a number of vertical ICT projects, rapid ICT growth and utilization and heavy donor support for ICT systems. While the availability of data has improved, the country systems still need time to mature with more robust data collection and use.

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[35] http://158.232.12.119/goe/policies/countries/civ/en/

[36] https://www.measureevaluation.org/resources/publications/gr-18-53

[37] ibid.

[38] https://www.measureevaluation.org/resources/publications/tr-19-370

Malawi

Over the past decade, Malawi, with support from a broad range of donors and partners, has focused on digital health investments to help achieve the national goal of universal health coverage. The Ministry of Health and Population (MoHP) and the Ministry of Information are the key government leaders in eHealth investments. Multiple strategies, directorates, and development projects have been designed and implemented to address digital health, with the most recent development being the 2019–2023 Digital Health Strategy. However, Malawian health systems still strongly rely on paper-based systems, especially at the facility/patient level. Other challenges include a reliance on donor resources which has led to a lack of sustainable and interoperable ICT investments, connectivity, and power issues, as well as a lack of integration with non-health activities where there is a health component.

Mozambique

Mozambique is in the process of updating the National Health Information Strategy 2009–2014.[39] Limited additional information is available on Mozambique's digital health enabling environment (e.g. policies, infrastructure, architecture, workforce, strategy, standards, interoperability, etc.) and much of the health sector appears to still be paper-based.

Namibia

Limited information is available on Namibia's data ecosystem and digital health enabling environment. It has been reported that there is a Ministry of Health and Social Services Health Information Systems (HIS) Technical Working Group which has been developing an HIS strategic plan and an HIS policy.[40]

Uganda

After experiencing a proliferation of siloed digital health pilots in 2012, Uganda's Ministry of Health signed a memorandum halting new digital health investments due to fragmentation and coordination challenges. Since that time, Uganda launched an eHealth Policy (2018) and a Digital Health Strategy 2017–2021[41] with key implementation steps to develop a more mature and interoperable digital health ecosystem. In addition, investments have been made in defining architecture and an interoperability roadmap to improve data sharing. Other priorities include improving the quality and use of health data. Challenges include existing data that is still predominantly paper-based, power and internet issues, as well as reliance on donor funding and resources which cause more fragmentation and sustainability issues.

Zambia

The Government of Zambia has an eHealth Strategy (2017–2021)[42] whose vision is 'To have quality, timely, secure and accessible health information through an integrated national

[39] https://drive.google.com/file/d/1NAsTOiC1HOQsJYO8CFRvYMb5gJ7rC1xw/view

[40] https://www.measureevaluation.org/his-strengthening-resource-center/country-profiles/namibia

[41] https://drive.google.com/file/d/1Ot9d8wHPTYC8apbs95mwjoYPdEd1YxK8/view

[42] https://drive.google.com/file/d/1ZoxE5flp6BeAaez-TDe8NSB0FTF9kuF1/view

eHealth system by 2021', and whose mission is 'To promote effective and efficient delivery of health to all Zambians using ICTs'.

Zimbabwe

Zimbabwe has been investing in digital health for a number of years, with investments in DHIS2 for a National Health Management Information system (HMIS) and a national HR database for medical personnel. A national eHealth strategy (2012–2017) was implemented to improve the health system via the usage of digital tools.[43]

A new National Health Information Strategy (2020–25) has been developed with the vision of 'Information and Surveillance for Universal Health Coverage' accompanied by five key pillars.

1. Health information stakeholders collaborate towards achieving the vision;
2. Health information is available where and when it is needed and shared easily and safely;
3. Health workers have the skills needed to use information systems productively;
4. Innovations that improve health services are approved and supported; and
5. Health information systems deliver value.

[43] https://www.who.int/goe/policies/countries/zwe_ehealth.pdf?ua=1

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