From data and reporting to impact and accountability: A case study on the Country Health Situation Rooms

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Executive Summary

This case study describes the *Country Health Situation Room* initiative, an approach developed in seven countries in sub-Saharan Africa to date in partnership with UNAIDS, to support better use of health data to help keep populations healthier and save more lives. The approach seeks to bring together different health data sources at country level into an integrated system that can then be used to put powerful, intuitive visualisations of progress and gaps on key health indicators into the hands of national decision-makers. The case study was based on document reviews and interviews with key Situation Room stakeholders.

While the "back-end" – the data integration layers and warehousing – of the Country Situation Rooms follow similar design principles, the user interface or "front-end" is highly customisable. How countries decide to customise their Situation Room depends on a number of factors: in particular the health areas of interest, the intended users, and the use format.

The first Country Situation Room was established in Kenya, in 2015. A further six countries – Cote d'Ivoire, Lesotho, Namibia, Uganda, Zambia, and Zimbabwe – had launched their Situation Rooms by mid-2018 and are currently at different stages of scale-up and roll-out.

Since the launch of the Country Situation Rooms, important achievements have been observed:

- ✓ Interest and commitment from high level national leaders. Leaders including heads of state have promoted and launched Situation Rooms in most countries.
- ✓ Enhanced collaboration between different health programmes and domains at country level. Country Situation Rooms have demonstrated ways in which different health programmes can be taken out of their silos leading to a more integrated approach to tracking health progress.
- ✓ Demand for improvements in performance led by decision-makers. The visual representation of achievements and gaps has spurred decision-makers to engage with data and follow up on identified problems.
- ✓ Improvements in data quality. By visually displaying outliers and anomalies the Situation Rooms have helped identify data quality issues and incentivised operators to improve data quality.
- ✓ Increased data use for decision-making. There are a number of examples of data being a key port of call for decision-makers, suggesting an improved culture of data use.
- ✓ Improved data sharing between different actors at national and regional levels. Clear agreements and policies on data sharing have helped build trust and collaboration; triangulation of data sources has led to more probing insights.

Some important challenges were identified which can inform future roll-outs:

- ✓ Turnover in staff and leadership. In some countries the initial engagement of high-level leaders has been compromised due to turnover and shifts in postings. At operational level some key trained operators have been reassigned to different roles.
- ✓ Interrupted momentum. Due to operational and budgeting constraints, Situation Room launches in some countries have not been followed up immediately with the operational phase, or due to the emergence of other priorities.

- ✓ Speed and quality of data. While Situation Room implementation has helped pinpoint data quality issues and catalysed improvements, this has not always been the case, particularly when resources for strengthening data collection are not available.
- ✓ Maintenance. The Situation Room initiative is learning iteratively about the challenges of integrating data from different sources. Strong "back-end" support is needed to ensure the Situation Room keeps up with regular changes to source data.
- ✓ Ownership. While launch and implementation has benefited from strong country ownership, some countries expressed a desire to gradually take over and host data integration layers themselves.
- ✓ User capacity. While the principle of the Situation Room is for it to be an easy-to-use tool, early experiences in some cases suggest that more work is needed to ensure the interface is intuitive and fits the needs of decision-makers.
- ✓ Potential unexpected consequences. Because some health data relates to stigmatised or marginalised groups, there are some concerns about the risk of data being used to identify locations leading to harassment.

The Situation Room approach is dynamic and iterative. Stakeholders identified a number of exciting future plans that reflect this:

- ✓ Improving functionality and tailoring of the Health Situation Rooms. This includes integration of new data in all countries, with inclusion of financial data on health investments a particularly exciting development.
- ✓ Expanding the user base – in particular for public accountability. The potential for the Situation Room to make performance data more accessible to the public has been recognised. Implementers see this as a source of greater accountability, feedback and benchmarking between different health system actors.
- ✓ Strengthening national ownership and sustainability and building on the regional potential with the African Union. Regional peer support teams, as well as collaborations to strengthen cross-country efforts on epidemic preparedness (via Africa CDC) and on sexual, reproductive health, maternal, newborn and child health are planned and underway.

1. Introducing Country Situation Rooms: the window on Health SDG progress

The challenge

…one health facility is coming close to a stock out of antiretroviral medicines, whereas another nearby has excess stock some of which is nearing its expiry date…

…the majority of health districts across the country are showing a drop in antenatal consultations over the past two quarters, yet one or two have stayed at a consistent level…

…community healthcare workers have been trained to provide community-level TB services, but national figures are showing little improvement in TB case finding or retention of people in TB care…

…unreliable, partial or outdated health information leads to poorly-informed decisions…

These problems are familiar in many countries in sub-Saharan Africa. Evidence-based strategies and increasing funding led to considerable progress in health over the MDG era, but many countries will still be challenged to achieve the Sustainable Development Goals by 2030, in particular SDG 3 for health. Better informed and organised health systems, stronger incentives, and better strategic information are needed to ensure greater impact of health investments. This case study describes the *Country Health Situation Room* initiative, an approach to integrating, speeding up and using health data to help keep populations healthier and to save more lives.

Background

Since 2014 UNAIDS, the Joint UN Programme on HIV and AIDS, has implemented a *HIV Situation Room* in its Geneva headquarters. The Geneva HIV Situation Room provided a forum for representatives of international technical partners and funders to discuss and address critical problems and bottlenecks in a country's HIV response; these are primarily identified through different country surveillance and reporting mechanisms.

Soon after its introduction, UNAIDS realised that the *Situation Room* concept had the potential to be even more powerful if it is owned and implemented at country level. Country situation rooms could lead to quicker action by putting actionable data into the hands of immediate decision-makers, as well as national political leaders who want better oversight of progress in health. Greater availability and transparency of data on health progress can also build strong accountability towards political leaders, funders and citizens themselves. Moreover, Country Situation Rooms have the potential to more easily link data from different sources, ensuring that diverse data collection efforts are made even more valuable. Finally, a country-led approach would also more easily extend to other diseases and health challenges, taking disease programmes out of their silos and making health services more people-centred. An obvious starting point was to bring together data on AIDS, tuberculosis, malaria and maternal, neonatal and child health.

The Country Situation Room initiative was designed to work in tandem with the efforts of the Health Data Collaborative (HDC[1]), a multi-partner initiative launched in 2016 to develop robust and sustainable national health monitoring systems. Country Situation Rooms help to operationalise the

[1] www.healthdatacollaborative.org

HDC vision of coordinating use of different data sources at country level, and facilitating standardisation of indicators and their use for effective decision-making across countries.

What are the basic building blocks and principles of the *Country Health Situation Room*?

During the development of the Country Situation Room concept, it was clear that technology would play a key role. Bringing together different data elements from different sources, different levels of the health system and along different timelines would require a powerful *data integration system* (or layer) that could effectively link up data from different sources, as well as *reliable data warehousing* to host the interlinked data. Given the vision of developing a tool for decision-makers and politicians rather than just data and health experts, however, it was also recognised that data should be easily usable and readable, and therefore that there would be the need for *user-friendly visualisation software* that could support intuitive and accurate interpretation. These elements, along with the option of a *physical room* providing a venue for analysing data and taking decisions, were the four basic building blocks of the country model.

Criteria for Country Situation Room Establishment

- ✓ DHIS 2.0 implementation (monthly updates)
- ✓ LMIS (monthly updates)
- ✓ Subnational (county/district), facility data, disaggregated by age and sex;
- ✓ UNAIDS Country Office with Strategic Information adviser and/or Fast-Track adviser;
- ✓ National staff mandates to take the project forward – clear country ownership;
- ✓ Funding for: training; national staff in sub-national level; software support and maintenance; user support (local company);
- ✓ National project management team;
- ✓ Internet connectivity
- ✓ Country-developed project concept note including plan, timeline and resources

However, it was also recognised that to be worthwhile, the Country Situation Room needed to be based on more than technology. Linking data from different sources and displaying it in an integrated interface would require a commitment from different parts of the health sector (such as the different programmes and health system levels), to *transparency*, to *data sharing and access*, and to *improving data quality* – since a Situation Room is only as good as the data it displays. It would also require a genuine interest from health and political leaders in using the insights: a country-owned culture of data use. With this in mind, the minimum criteria for its establishment in a country emphasise both technical and leadership aspects (see box). The Country Situation Room needed to be more than just a piece of software, but rather a programme provides a window into what is happening in health overall.

2. Country Situation Room roll out: the story so far

Where has it been rolled out?

The first Country Situation Room was established in Kenya, in 2015. A further six countries – Cote d'Ivoire, Lesotho, Namibia, Uganda, Zambia, and Zimbabwe – had launched their Situation Rooms by mid-2018 and are currently at different stages of scale-up and roll-out. Meanwhile UNAIDS is undergoing preparatory work with leaders in Malawi, Mozambique, Rwanda and Tanzania among others. In addition, UNAIDS is collaborating with Africa CDC on the possible development of a regional Health Situation Room, firstly to consolidate health management information systems at the regional level and secondly to strengthen regional epidemic and outbreak monitoring systems. Reflecting the high level of interest and political commitment to the initiative, launches in each country have typically taken a high profile, often attended by a Head of State, Minister of Health and the Executive Director of UNAIDS.

Although each country that has established or is in the process of establishing a Situation Room fulfils the criteria outlined in the previous section, the approach is flexible enough to adapt to specific country requirements and to learning from other countries. The table in annexe illustrates how the decisions and design have been different for each country, with each having a unique approach either to the scope (which health problems and which indicators are included), the leadership (for instance, MOH data directorate, National HIV Council, Office of the President), the user base and the data sources included.

How are Country Situation Rooms different from existing country data platforms?

Countries already have a range of data platforms, some of which, like the DHIS2, have visualisation functions. The Country Situation Room approach, however, is designed to address two critical limitations to current platforms. Firstly, for actionable data to be used by high-level decision-makers, including politicians, it is important that it be presented in user-friendly, intuitive formats, whereas most health data applications are designed for use by a small, specialist user-base. Secondly, and critical to the design of the Country Situation Rooms, is the potential utility of integrating data from different sources. While DHIS2 is the data foundation for Situation Rooms in every country, and in and of itself the Situation Room provides more user friendly and accessible data analysis functions that support DHIS2's uptake, all of the implementing countries have added data from additional sources. The data integration layer enables a linking or cross-referencing of data from different sources in order to provide richer insights to users. As the annexed table shows, many countries have started to add surveillance and disease projections and logistics data (LMIS) and are exploring the integration of human resources and financial data in particular. They also cover a wide range of health issues, since another purpose of the Situation Room approach is to take disease or health issues out of their siloes and to promote a more integrated approach to understanding and promoting better health outcomes. In some cases – Kenya and Zambia, for instance – there is also considerable interest in seeing how the Situation Room concept could be adapted to other sectors such as Education and Agriculture.

What do Situation Rooms look like?

While the "back-end" – the data integration layers and warehousing – of the Country Situation Rooms follow similar design principles, the user interface or "front-end" is highly customisable. How countries decide to customise their Situation Room depends on a number of factors: in particular the health areas of interest, the intended users, and the use format.

The natural starting point for Country Situation Rooms, given the involvement of UNAIDS, is HIV programming. However, most countries are including other health areas, in particular tuberculosis, malaria, reproductive, maternal, newborn, child and adolescent health. Demand for inclusion of matneral, newborn and child health inclusion from health leaders is particularly strong. Within these broad health areas, countries have also decided which trends they wish their Situation Rooms to visualize and focus on. For instance, Kenya's Situation Room includes indicators on antenatal care attendance (comparing numbers attending first and fourth ANC visits); Uganda includes HIV viral suppression to cement understanding of progress against the 90-90-90 targets; and Cote d'Ivoire includes cervical cancer screening rates. Cote d'Ivoire is also set apart by its inclusion of data gathered through feedback from service users. Countries have also used the approach to focus efforts on equitable access and on targeting the most burdened and at-risk population groups such as children, adolescent girls and pregnant women. All of the participating countries to date have already included some components of SRMNCAH (Sexual, Reproductive, Maternal, Neonatal, Child and Adolescent Health) data in their Situation Rooms.

While the choice of health themes and indicators are partly determined by the availability of data, they are also based on the strategic and political priorities of the country and reflect the indicators that some of the key users have asked to see. Many countries have users at the highest political level, with a number of Ministers of Health, Health Department Directors, and health programme leaders actively the Situation Room; in Kenya the President himself uses the visualisations which tie in with the high priority he places on health. At the same time countries have also recognised the potential of the Situation Room at a more operational level, with Kenya having trained leaders at county level to use the system; Lesotho also took the decision to train users in one county in parallel with national level users in order to pilot subnational implementation from the outset. In addition, the Situation Room can also provide a platform for public access to data and greater citizen accountability, something that both Uganda and Zambia are developing by means of web-based portals.

Closely linked to both the thematic focus and the user base are the formats under which the Situation Room is made available. Most countries have implemented a Situation Room "App" which can be used on a smartphone or tablet and have invested in providing tablets to key decision-makers or target users. The appeal of this approach is that users can rapidly pull up and search data, including in some cases when not online by using a cache system. Users can be assigned different access rights which makes it easier for administrators to target information and to only release data as appropriate. In other cases, PC-based implementation has allowed for a broader user base. Uganda has opted for a physical situation room in the office of the Uganda AIDS Council Director General, which follows the original UNAIDS HQ model and lends itself to manipulation and discussion of the data by multiple people at once, or during meetings. In Uganda the Situation Room has made it possible to unify disparate displays or dashboards into one location. Finally, some countries have introduced public displays on large television screens, or publish them through email, with the intention of making basic available to citizens and activists. These versions are static and do not have the power of the full Situation Room application.

While UNAIDS continues to play a support function focused on capacity building and hosting the data integration layer, Situation Rooms are country led, with national leaders leading the appointment of technical teams, and with these teams leading indicator selection, training of subnational users and all other operational functions.

Another key common feature of Country Situation Rooms is providing the option to users of searching and cross-referencing data. While this is not possible for big-screen displays, PC or device-based users can use powerful search tools to triangulate different data points, and to "drill down" to different types of disaggregation along geographical or technical lines. The screenshots below provide examples of these visualisations. Touchscreen devices in particular allow for very easy searching and "zooming" on specific issues or geographical areas.

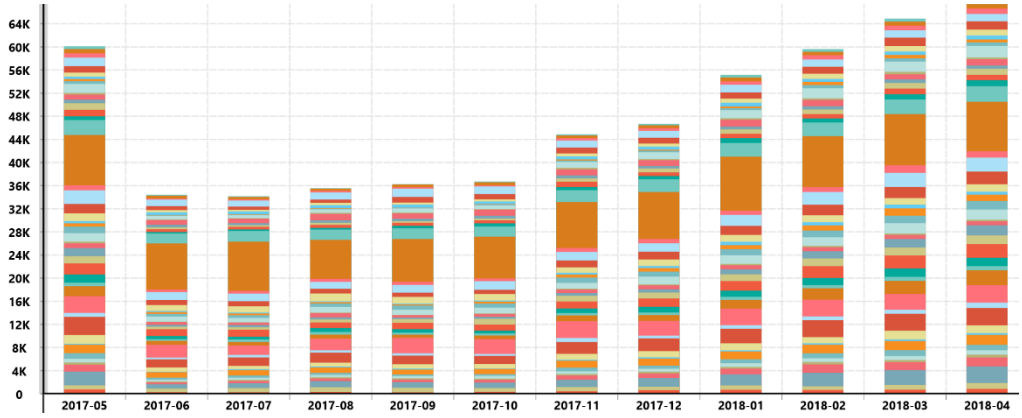
What do Country Situation Rooms cost?

Understandably given that it has been operationalising the Situation Room since 2015, Kenya represents the highest expenditure to date (~US$180,000). Most other countries have spent between US$60-70,000 during their start up phase. Given UNAIDS role in providing technical support, training and capacity building contracting the software provider and data warehousing, the UNAIDS HQ has represented around a third of the US$956,000 spent to date. Buy-in from other investors has been encouraging, with the Government of Kenya substantially investing already, and other country governments also allocating funds to the initiative. Financial partners including the Global Fund, USAID and CDC have also contributed financially to the development and ongoing implementation of Country Situation Rooms.

Sample visualisations from the Country Situation Rooms

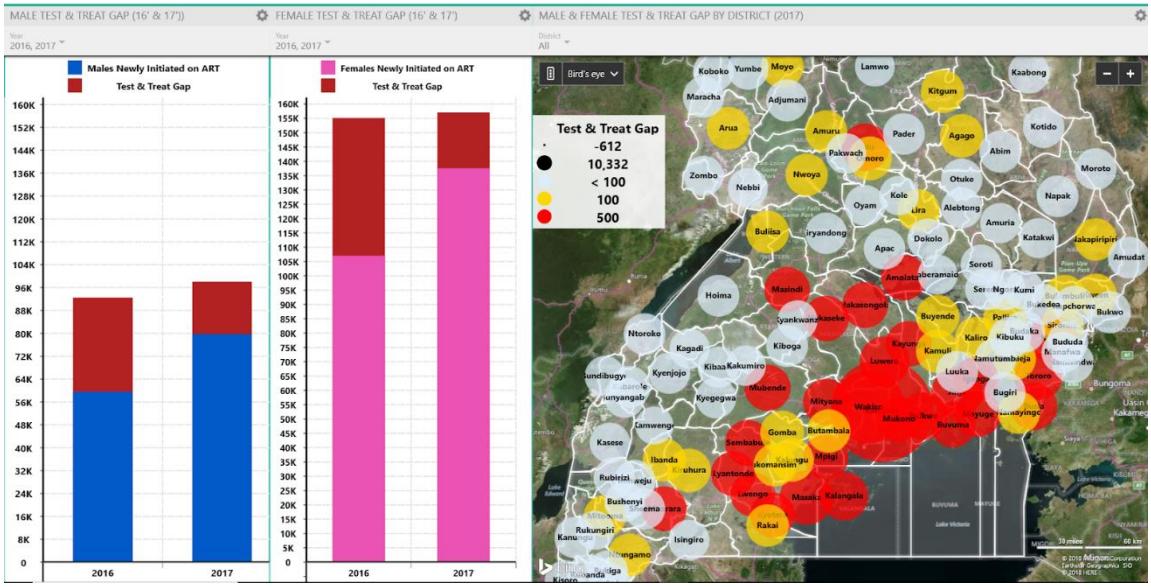
4th ANC visit in Kenya

Kenya experienced a sharp decline in the numbers of women attending their fourth ANC visit in June 2017. This coincided with a nursing strike, and as the graph shows it took some time for rates to recover. Each colour represents a district, and by filtering the information along these lines users could observe that rates did not drop off everywhere. In the event, performance was shown to hold up in the districts that negotiated and resolved the strike autonomously and lessons on resolving the strike could be shared.



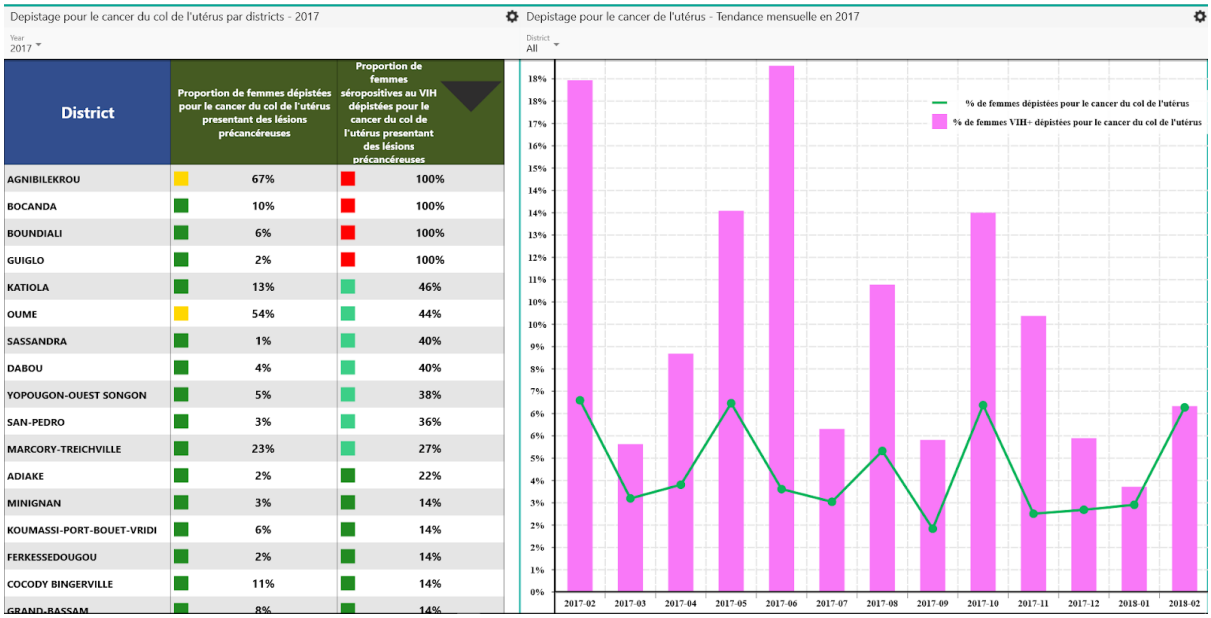
Test and Treat gap in Uganda

Uganda's Situation Room visualisation shows the narrowing of the HIV test and treat gap by year, broken down by gender; as well as enabling users to identify districts with the biggest gaps. This visualisation could also be overlaid with information on district and facility level ART stocks; detailed analysis can help decision makers to address barriers such as stock outs.



Data for action on cervical cancer screening in Cote d'Ivoire

This visualisation clearly illustrates the increased risk for cervical cancer for women living with HIV, providing a basis for advocacy to ensure screening is available for women in general and particularly those living with HIV.



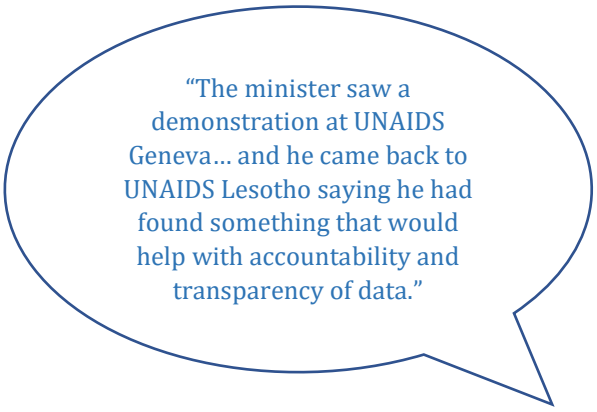
District	Proportion de femmes dépistées pour le cancer du col de l'utérus presentant des lésions précancéreuses	Proportion de femmes séropositives au VIH dépistées pour le cancer du col de l'utérus presentant des lésions précancéreuses
AGNIBILEKROU	67%	100%
BOCANDA	10%	100%
BOUNDIALI	6%	100%
GUIGLO	2%	100%
KATIOLA	13%	46%
OUME	54%	44%
SASSANDRA	1%	40%
DABOU	4%	40%
YOPOUGON-OUEST SONGON	5%	38%
SAN-PEDRO	3%	36%
MARCORY-TREICHVILLE	23%	27%
ADIAKE	2%	22%
MINIGNAN	3%	14%
KOUMASSI-PORT-BOUET-VRIDI	6%	14%
FERKESSEDOUGOU	2%	14%
COCODY BINGERVILLE	11%	14%
GRAND-BASSAM	8%	14%

3. What have been the key achievements of the Country Situation Rooms?

Successful implementation of the Situation Room approach depends on many factors. These include the availability of good quality data; relevance of the selected indicators to users; flexibility and adaptability to country needs; buy-in and support from the relevant health and political leaders; usability; and good integration into existing mechanisms in the country. The review of implementation so far shows that Country Situation Rooms have made a number of important contributions, not all of them expected. Some of these relate to the process of setting up the Situation Rooms, and others relate to the types of insights and actions that they are intended to generate.

Interest and commitment from high level leaders

The Situation Room is about putting usable data into the hands of decision makers, both within government administrations and at the political level. In starting up the initiative UNAIDS knew that bringing together disparate parts of the health sector required leadership at a high level. The Executive Director promoted the initiative at Prime Ministerial and Presidential level, with heads of state attending a number of country launch events. As noted above this has translated into strong national ownership of all layers of implementation.



Enhanced collaboration

The high level of leadership also helped to ensure effective collaboration between different health areas and data leaders – essential since one of the core features of the approach is to bring together data and insights from different sources. As described above some countries have established shared leadership of the Situation Room between their National AIDS Councils and their Ministry of Health data or strategic information directorates, and a number of funding and technical partners have backed the initiative. In Kenya the Situation Room lead (NACC) convenes a working group bridging other health areas including the medical supplies agency, SRMNCAH programmes and technical partners to agree criteria for the introduction of new indicators and to define how information should be visualised and reported. This is an important consideration since for non-technical users, directionality and

meaning of indicators can be difficult to interpret. Because the Situation Room gives more visibility to flaws in data quality (discussed further below), it has also created an incentive for different departments to work together to correct errors.

Decision-makers demanding improvements from the outset

The high level of attention to the Situation Room led in many countries to almost immediate demands from decision-makers. Because the launches involved live demonstrations of the Situation Room, leaders participating in the events naturally zeroed in on their areas of interest – and when they saw gaps or signals of weak performance, they asked for explanations. Members of parliament and ministers asked to see HIV data from their constituencies; or malaria from their villages – asking why they were rated as "amber" and not "green". As well as creating interest and curiosity these events generated momentum. As one user commented, the initiative has started to create dialogue about data between decision-makers.

> "During the launch the directors were there. One could see his district was performing poorly. He went straight to the director of planning to ask why and demanded district and facility specific dashboards".

Improving data quality

Not all of the examples that ministers picked up on during launch events accurately reflected the problems they implied. Perhaps the most significant success story of the introduction of Country Situation Rooms so far has been that they have helped identify and render highly visible these data quality issues – and as a result, driving improved data quality. This has particularly been felt in DHIS2 – with countries reflecting that as they introduce DHIS2, the Situation Room has provided added impetus for timely and quality data. Again, this is a consequence of the seniority of the intended user base of the Situation Room.

One common data quality issue relates to map-based visualisations. As the screenshots above show, the intention is for data to appear on a map, tagged to districts or facilities. In Kenya there is an established master facility list; however, some facilities were not visible on the Situation Room visualisation. This was because geographic coordinates had not been input correctly or had been left at default (0,0). Other examples include obviously incorrect figures for key indicators such as malaria screening or skilled deliveries. Because these instances stuck out so visibly they led to immediate remedial action – in some cases, inputting of missing data; in others, correction of incorrect formulae in the Situation Room coding.

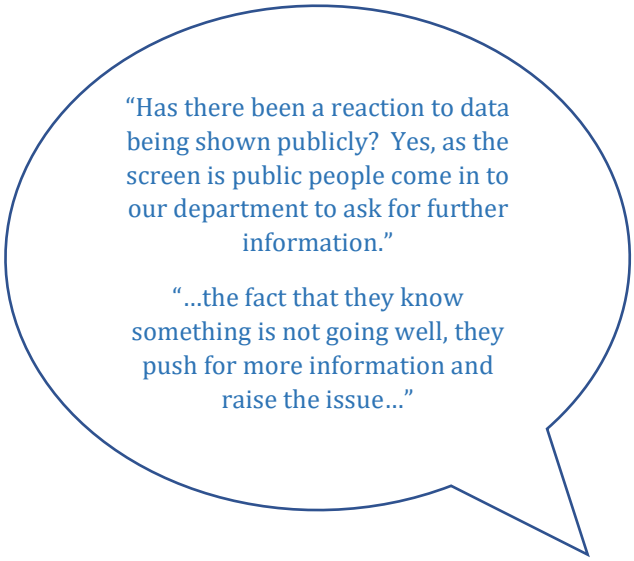
> "The fact that DHIS2 is still being rolled out is an opportunity. In a sense the Situation Room focus in the short term is on data quality – which might not have happened otherwise."
>
> "We used to have data quality exercises. It would take a long time. But now that data is being used it hurries things up. There is more demand, more democracy."

Because the Situation Room is a portal for convening data from diverse sources, it also enables rapid validation of the figures

it displays. In one case a MOH Cabinet Secretary was not prepared to believe that cervical cancer screening was as low as the Situation Room suggested. However, by linking back to the data source (DHIS2) it was possible to demonstrate that the figures were accurate and that this area of programming required attention. There are examples of districts acting to improve their data quality when it is shown up as being poor in the Situation Room, and of ministry departments updating and improving their reporting forms and procedures for the same reason. The Situation Room has made it possible to verify data quality and trigger action, sometimes as a result of pressure from health or political leaders, and sometimes by departments or districts benchmarking their data quality against others and finding that they need to perform better.

Encouraging data use by making data use for action easier

The ability to visualise data from different sources in a single display – triangulating aspects such as targets, service delivery, and material and human resources – has helped provide the context decision makers need and give a stronger basis for taking remedial actions. Early users particularly identified the role of the Situation Room in identifying outliers and anomalies – for instance low performance despite apparently correct resourcing. One example given was of a tier one hospital showing higher performance in delivering 4th antenatal consultations than in delivering 1st. This led to discussions between relevant actors, and identification of specific circumstances that were leading patients to move from community facilities to the hospital for their ANC4 visit. A small number of countries have introduced public displays of Situation Room data, with some examples of NGOs and funders using that data to ask questions of managers.



Data owners – for instance, directors of strategic information departments or DHIS2 managers – have also given some recognition to the Situation Room. It is seen as providing a "shop window" to disseminate data that until now has only been accessed by a limited number of experts. It has helped showcase the value of good data as well as helping make the case for investing in better data – in particular through the DHIS2 system which is the mainstay of programme data at country level.

Another sign that the Situation Room has become part of a broader culture of data use include the use of Situation Room dashboards in reporting by county health managers to county governors in Kenya. Also in Kenya, there are emerging examples of sub-national use – for instance, using data on stock levels in different facilities to move commodities to locations at risk of stock outs, and to ensure stock closest to its expiry date is used first. This local action is facilitated by the fact that unlike with the DHIS2 displays, county level Situation Room users can generate their own dashboards.

Improved data sharing

The Country Situation Rooms have provided a platform for the development of formal and effective agreements on data sharing between different actors. Country concept notes emphasise that

Situation Room partners may only use shared country data to support analysis by public health officials, alongside data capacity building efforts. These agreements have been essential for building trust that data is secure and appropriately used, and can form a platform for future regional capacity building and health analysis in collaboration with Africa CDC.

Key achievements at-a-glance

- ✓ Interest and commitment from high level national leaders. Leaders including heads of state have promoted and launched Situation Rooms in most countries.
- ✓ Enhanced collaboration between different health programmes and domains at country level. Country Situation Rooms have demonstrated ways in which different health programmes can be taken out of their silos leading to a more integrated approach to tracking health progress.
- ✓ Demand for improvements in performance led by decision-makers. The visual representation of achievements and gaps has spurred decision-makers to engage with data and follow up on identified problems.
- ✓ Improvements in data quality. By visually displaying outliers and anomalies the Situation Rooms have helped identify data quality issues and incentivised operators to improve data quality.
- ✓ Increased data use for decision-making. There are a number of examples of data being a key port of call for decision-makers, suggesting an improved culture of data use.
- ✓ Improved data sharing between different actors at national and regional levels. Clear agreements and policies on data sharing have helped build trust and collaboration; triangulation of data sources has led to more probing insights.

4. What have been the main challenges?

As with any innovation – particularly technology-based innovations – there have been challenges in the roll out of the Country Situation Rooms. Recognising these challenges is important to enable Situation Room implementers to anticipate and correct as the initiative rolls out across more countries.

Turnover in staff and leadership

The Country Situation Room approach is both new and very different system, and as such, until it becomes truly embedded, its success is very sensitive to changes in personnel. Some of the countries where the Situation Room has started to be rolled out have experienced high turnovers in key personnel at different levels – at the operational or user level, and at the system administration level. When this happens investments in training and on-the-job learning are wasted, and catching up the skills of new staff is more costly. It has therefore contributed to delays in effective roll out of the approach.

Also challenging is the frequency of changes in leadership. Because the Situation Room is ultimately about putting data in the hands of high-level decision makers, their engagement is critical to its success. And as we have seen, in every country where the Situation Room has been launched, the launch has been attended or sponsored by high-level leaders, including in many cases the Head of State. However, senior government roles are also subject to turnover either as a result of elections or reshuffles. One country reported that the Minister of Health had changed three times since the launch, and that each time the Situation Room team and UNAIDS had had to rebuild the interest of the new incumbent. Senior level leaders also have a significant influence on the focus of the Situation Room and can help determine which health areas or indicators are prioritised – but when the leaders change, sometimes so do the priorities. Further adding to this challenge, because the Situation Room approach involves partnerships between different departments, institutions and ministries – and these partnerships are based on personal relationships – turnover of leaders in one institution can destabilise the important partnership and coordination work.

Interrupted momentum

Related to the previous point, actors in some countries have reported that they have struggled to maintain the momentum needed to make the Situation Room operational and to get to scaled up use. Situation Room launches have been highly mediatised, reflecting the high level of political and institutional commitment to the concept but in some cases these events have taken place before the application was fully up and running. This could be either because the system was not set up but also because data sources such as DHIS2 were not yet mature enough to be fed into the system even

though an official launch had taken place. In one country in particular, district level users were trained some months before there was any opportunity to put the skills into action, meaning that refresher training was needed. Momentum has also been interrupted by insufficient resourcing of the initiative, countries and UNAIDS offices often having to rapidly find resources to fund individual phases of the roll out (such as training, configuration, equipment, and launch).

Speed and quality of data

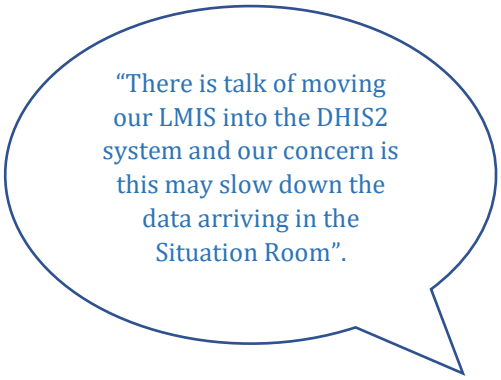
The role of the Situation Rooms in catalysing greater quality of data is rightly described as a strength in Section 3. However, data quality problems, and slow updating of routine data into the Situation Room system do also need to be acknowledged as weaknesses since they risk eventually undermining the fundamental purpose of the Country Situation Rooms, which is to enable quick, evidence-informed decision-making. The potential of the Situation Room in driving improved data quality needs to be realised fairly quickly since otherwise the approach risks being seen as not delivering on its purpose. Perhaps more importantly, there could be a risk that the Situation Room catalyses decisions based on incomplete or inaccurate data.

On the issue of speed of data, the Situation Room approach has at times been promoted as a mechanism for displaying and disseminating data in "real time". Although the approach is highly automated and is certainly a way of rapidly displaying data combined from different sources, the timeliness of the data it displays is of course fully dependent on the data processes behind the information systems that feed it. DHIS2 data, which is the starting point and backbone of most country Situation Rooms, tends to be updated quarterly and goes through a necessary period of data cleaning and validation, although some countries have begun testing more frequent reporting – monthly in Zambia, for instance. Depending on the degree of automation other systems can be quicker – LMIS data for instance can rely on warehouse and facility-based barcode scanning which means the data is potentially refreshed instantly. On the other hand, estimates of ART and PMTCT coverage needs and trends produced using the Spectrum model are updated annually. It is worth bearing in mind as well that DHIS2 is relatively new in some of the countries adopting the Situation Room, and so any challenges related to DHIS2 roll-out will necessarily have a knock-on effect. Some countries have been slower to enable the addition of data sources beyond the DHIS2, which carries the risk of the Situation Room not realising one if its main added values, to be an interface for combining diverse data sources. Similarly, presentation of geographically disaggregated data is a major attraction of the Situation Room but sometimes takes time to roll out effectively.

The fact that the Situation Room does not represent actual "real time" data may not be too much of an issue at the national level, since national decision-makers are in theory more concerned with longer term trends and strategic challenges. However, it does raise questions about the potential utility of Situation Room technology at subnational or local levels where managers and healthcare providers should have access to real-time information.

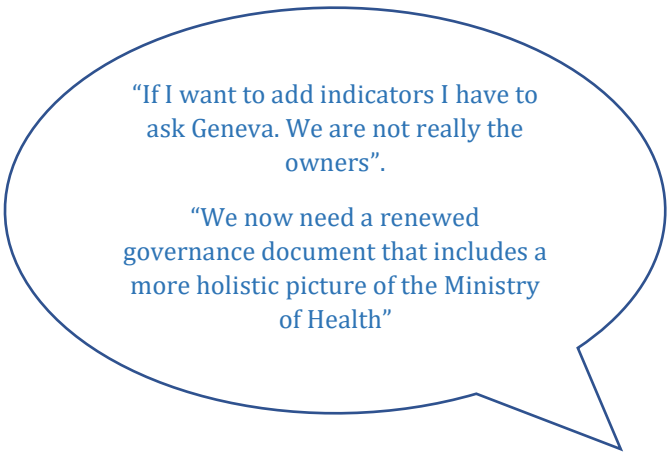
Maintenance

While the combination of different data sources is a major strength of the Situation Room, the interdependencies that this creates can prove challenging and creates a need for considerable ongoing maintenance. For instance, the software behind DHIS2 – and other key data sources – is updated fairly regularly, and these updates can sometimes interfere with the API connection between the data source and the Situation Room. Situation Room administrators therefore need to keep a close eye on changes to source data to identify changes and make the relevant adjustments to the connections. Overhauls of existing data systems will also affect Situation Room functionality. This ongoing maintenance is therefore an important part of the approach and can require considerable human resource input, especially when multiple data sources are being accessed. While some level of maintenance is always going to be necessary with a complex software-based approach, UNAIDS and countries are aware that this can be challenging for Ministries or departments with limited IT capacity and resources and so are exploring systems that can be the most easily maintained and updated.



Ownership

As described above, the circumstances of roll-out of the country Situation Rooms reflected a high level of national commitment and ownership. The innovative ways in which countries have adapted and expanded the Situation Room – for instance county-level roll out in Kenya, and extension to non-health sectors in Zambia – also reflect a high level of ownership. However, for some administrators and managers at country level, the current infrastructure whereby much of the data integration and warehousing is handled by the UNAIDS headquarters, are somewhat limiting their ability to adapt the system as rapidly as they would like. Greater national ownership can also help ensure access to and inclusion of data from different sources and coverage of health issues beyond HIV. While all Situation Rooms have a governance framework within their founding concept notes, the quickly moving landscape calls for revision of this governance so that different data approaches, timelines and commitments from different parts of the health sector can be aligned as issues arise.

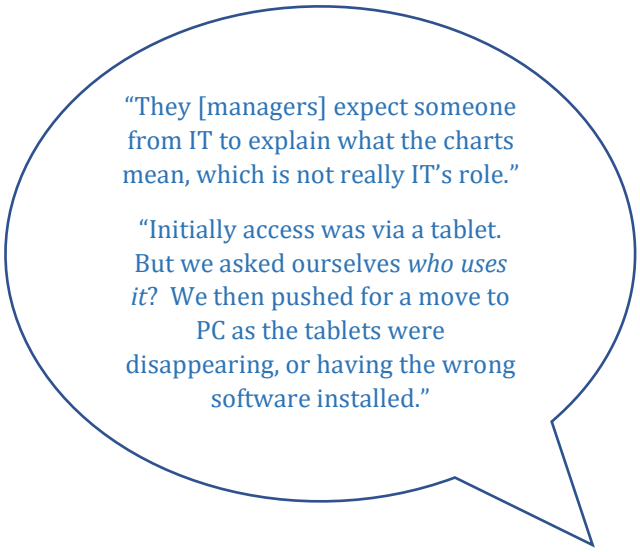


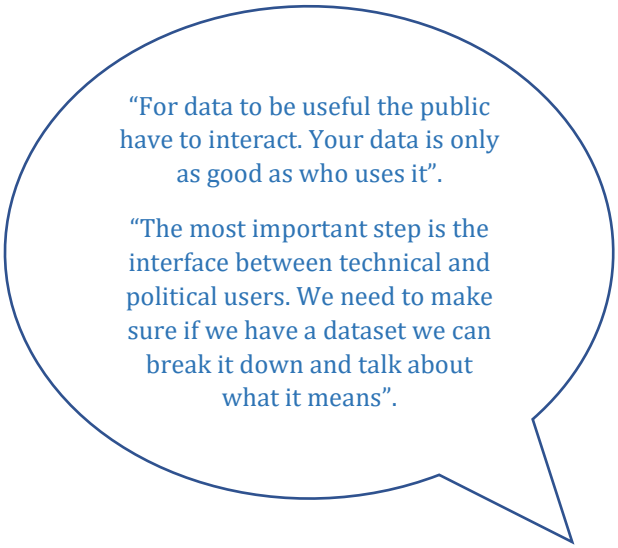
The ownership challenge is not only related to system administration or data warehousing. Because many health programmes are still externally funded, and some funders determine and control the data collection systems related to their programmes, countries do not always have ownership of all of the health data that they are accessing – which again poses challenges of interoperability and aggregation. Just as importantly, and a critical issue to be dealt with, is the acknowledgement that for all of the high-level acceptance of the Situation Room concept, the "culture" of data use is still

not embedded in every country, and so a critical next step will be to develop this culture, ideally through demonstrable impacts of the Situation Room and other tools.

User capacity

Closely linked to ownership and the "culture of data use" is the capacity of users to adopt and interpret the Situation Room. While the Situation Room application is much easier to use, filter, and manipulate than the more technical applications that it draws data from, it has nonetheless transpired that intended users at the decision-making level are not always comfortable or competent, even when it comes to straightforward "touchscreen" functions. Because the application collects analytical data on use, programmers can adapt it and improve usability over time based on patterns of use and preferences. However, it remains the case that to some extent, adoption of the tool needs to be "self-driven" – so the intended users need to have the capacity but also need to see added value in using it. In some countries there was a big buzz around the use of smart devices such as phones and tablets, especially given the potential convenience and ease with which administrators could tailor permissions to users. Devices were distributed to key users with mixed results leading the administrators to look for new ways to make the data accessible such as on publisher emails or on websites, in order to see if that generates greater interest.





While Situation Room administrators in most countries aspire to use the approach to go beyond "high level" users to make data more accessible to the public, they acknowledge that there is still a way to go. While in some cases, public visualisation screens exist, the option of a public web portal is emerging as the preferred method.

Correct interpretation of indicators, and of visualisations, is also affected by user capacity. For instance, individuals with limited exposure to indicators may not always understand the significance of results, or even the directionality of indicators. It is also not always clear to the layperson that different indicators shown on one screen may correspond to very different timelines, and that caveats are needed in their interpretation. At the same time, the discussion generated as a result of confusion around interpretation of indicators can also be an opportunity to demystify and explain and to foster greater engagement with data.

Potential unexpected consequences

It is difficult to predict every consequence of the introduction of new technologies or approaches like the Situation Room. To date, few adverse events have been identified. In some cases, system administrators have observed some reticence especially at the programme level of engaging, because opening up data also means opening up to greater outside scrutiny. Combined with the challenge noted above, related to interpretation of data by non-experts, it is understandable that this concern arises.

The other potentially problematic issue identified so far relates to sensitive data, specifically data related to HIV key populations such as men who have sex with men, sex workers and people who inject drugs, who are stigmatised and excluded and often criminalised. While public accountability related to these groups which are often left behind by programmes are important, some types of data may put them at risk of further marginalisation, violence or discrimination. Public access to information on these groups – or even just access by other government departments – therefore needs to be considered carefully, and in consultation with representatives of those affected communities.

Principal challenges at-a-glance

- ✓ Turnover in staff and leadership. In some countries the initial engagement of high-level leaders has been compromised due to turnover and shifts in postings. At operational level some key trained operators have been reassigned to different roles.
- ✓ Interrupted momentum. Due to operational and budgeting constraints, Situation Room launches in some countries have not been followed up immediately with the operational phase, or due to the emergence of other priorities.
- ✓ Speed and quality of data. While Situation Room implementation has helped pinpoint data quality issues and catalysed improvements, this has not always been the case, particularly when resources for strengthening data collection are not available.
- ✓ Maintenance. The Situation Room initiative is learning iteratively about the challenges of integrating data from different sources. Strong "back-end" support is needed to ensure the Situation Room keeps up with regular changes to source data.
- ✓ Ownership. While launch and implementation has benefited from strong country ownership, some countries expressed a desire to gradually take over and host data integration layers themselves.
- ✓ User capacity. While the principle of the Situation Room is for it to be an easy-to-use tool, early experiences in some cases suggest that more work is needed to ensure the interface is intuitive and fits the needs of decision-makers.
- ✓ Potential unexpected consequences. Because some health data relates to stigmatised or marginalised groups, there are some concerns about the risk of data being used to identify locations leading to harassment.

5. Future directions – where do the Country Situation Rooms go from here?

Based on experiences to date, the vision of the Country Situation Rooms remains to guide policy makers and leaders to make correct and timely decisions, based on the best available data. Despite some implementation challenges, the Country Situation Room initiative has shown that it has the capacity to adapt and correct over time. As new countries have taken up the approach, they have learned from forerunner countries, in particular in terms of how to select indicators and how to integrate different data sources. The Situation Room software itself has also adapted over time, responding to analytics of how it has been used, and to the specific needs of users in each country. As the discussion above suggests, as well as ironing out problems within the Situation Room approach itself, it has also helped iron out problems within the broader health information system. This is particularly evident in the area of data quality. As well these course-corrections, Situation Room countries have a number of future plans related to the functionality and the user base which are discussed in brief in this section.

Improving functionality and tailoring of the Health Situation Rooms

The IT platform of the Health Situation Rooms is such that the interface can be continuously improved. As well as introducing new dashboards tailored to specific country needs, many countries are planning integration of new data sources. Perhaps the most ambitious – and exciting – of these is the planned integration of financial data which will expand the line of sight to incorporate investments and expenditure, which will be particularly useful for the policy-making level.

At the same time implementing countries have learned that it is best to avoid overloading Situation Room users. In general, the higher the level of the user (in terms of decision-making influence), the fewer indicators are needed. While a programme manager will want granular details on programme delivery and resource availability, a Minister of Health may only need headline data on key targets – such as testing, ART coverage and viral suppression in the case of HIV. Future iterations of the Situation Room will make it easier to tailor and differentiate access and display of different information to policy makers versus technicians.

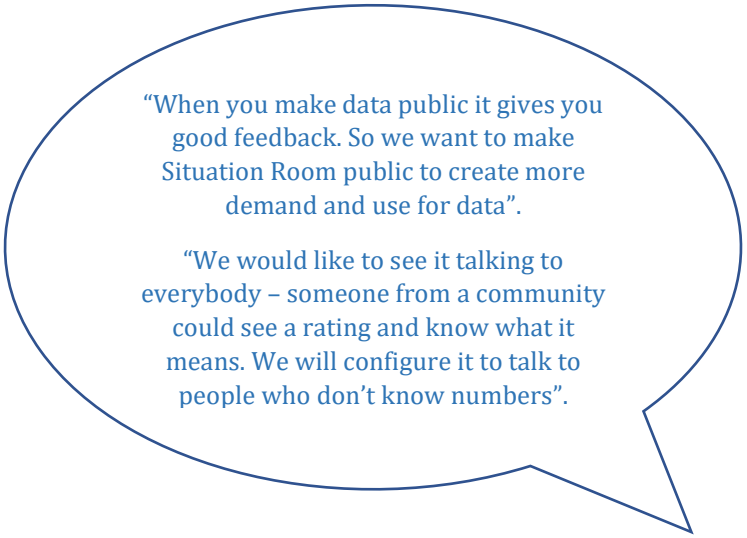
It has also become clear that not every high-level user has the capacity or inclination to carry out even basic analysis or manipulation of data. In these cases, configuring ready-made visualisations or analyses will be considered. On the other hand, some technicians and data managers have an appetite for analysis and data use even when they don't have sophisticated tools like the Situation Room to hand, and Situation Room leaders will be looking to identify and work with these "adopters" in order to demonstrate the potential of the approach.

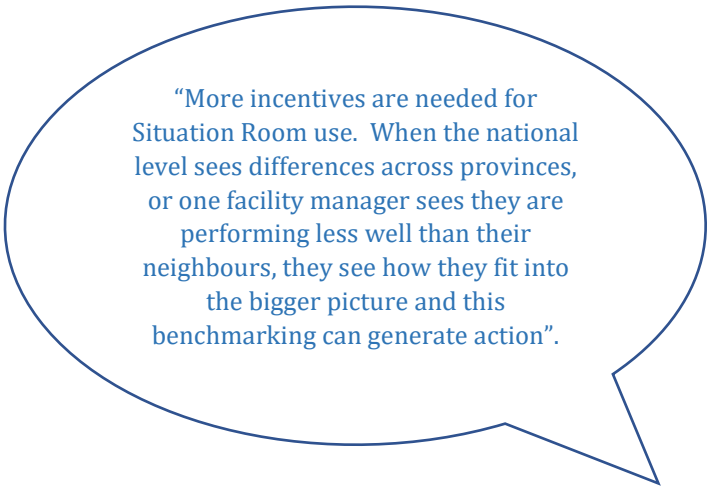
Also critical to the usefulness of the Situation Room, as discussed in detail above, is data quality. The potential of the Situation Room in driving improved data quality is an important message to emerge from its implementation to date, and as the approach evolves its role in this sphere will be further developed and brought to the fore.

Perhaps the most ambitious plan in terms of functionality is to expand the Situation Room concept into other spheres of governance and development, such as agriculture and education – something that the Zambian government in particular has been pursuing.

Expanding the user base – in particular for public accountability

The original user base of the Situation Rooms was, as is noted above, decision-makers; adaptations are being made to ensure it works as intended for this audience. The experience to date has opened up new possibilities in terms of how the approach is used, and countries are trying to fulfil more user needs as they progress. There is now an understanding that to reach different types of user, the Situation Room needs to be configured and delivered in different ways. New audiences being discussed include civil society organisations and the general public; particular attention will need to be paid to providing relevant information and indicators. Situation Room administrators have also noted that civil society and public access will provide an important opportunity to get feedback; opening up the Situation Room data will therefore need to be accompanied with the development of mechanisms for gathering and responding to this feedback. Whether data is made available to the public in static format or in searchable, dynamic format is dependent on the country context. In Kenya the NACC website will show periodic reports whereas in Zambia, the initiative has already started conducting trainings of trainers in major cities on how to generate reports that show the narrative of specific health issues in their communities: these are the types of approach that country Situation Rooms will be increasingly adopting.





It is anticipated that expanding the user base to the public and to subnational government health administrators will create increased potential for benchmarking between different facilities and localities, which is known to be an important catalyst for improvements in service delivery. These comparisons can also enable local government to more proactively allocate resources to the areas doing comparatively less well and that need most support

Strengthening national ownership and sustainability and building on the regional potential with the African Union

Plans have already been made by the UNAIDS Regional Support Team to develop a regional technical expert group to ensure peer support and ownership which would include a virtual forum for administrators to ask and answer questions related to Situation Room implementation and enhancements. This will help to decentralise expertise and troubleshooting, covering issues such as data element selection, dashboard creation and addition of new indicators.

One of the key plans for the immediate future is the implementation of Situation Room at regional level, under the leadership of Africa CDC and the African Union. Using the Situation Room to triangulate information on health programmes across borders has the potential to speed up lesson sharing between countries facing similar problems, and to benchmark success on key health challenges at country level, as well as enabling greater continent-wide capacity to identify and respond to health emergencies.

Strengthening regional efforts around sexual and reproductive health and rights (SRHR) will also be a focus in the near future. The Southern African Development Community (SADC) SRHR Strategy 2019 – 2030 was developed in 2018 with technical support from UNAIDS, UNFPA, UNICEF and WHO and funding support from the Swedish International Development Agency (Sida). The associated SRHR scorecard acts as a high-level political tool that enables Member States to track their own progress against the Strategy drawing upon key indicators to measure the extent to which the region is meeting global, continental, and linked regional commitments. The UNAIDS Situation Room initiative, which is expected to be implemented in half of all SADC member states by the end of 2019, will support SADC to see trends, monitor progress, and increase accountability of SR implementing member states. Efforts are already well underway to align key indicators on the scorecard with those in country Situation Rooms for the timely creation of SRHR scorecard-specific dashboards.

Future directions at-a-glance

- ✓ Improving functionality and tailoring of the Health Situation Rooms. This includes integration of new data in all countries, with inclusion of financial data on health investments a particularly exciting development.
- ✓ Expanding the user base – in particular for public accountability. The potential for the Situation Room to make performance data more accessible to the public has been recognised. Implementers see this as a source of greater accountability, feedback and benchmarking between different health system actors.
- ✓ Strengthening national ownership and sustainability and building on the regional potential with the African Union. Regional peer support teams, as well as collaborations to strengthen cross-country efforts on epidemic preparedness (via Africa CDC) and sexual and reproductive health rights are planned and underway.

About this case study

This case study was commissioned by the Partnership for Maternal, Newborn & Child Health, as part of its commitment to strengthening country-level and regional accountability across a broad range of health areas in support of women's, children's and adolescents' health. To support improved alignment and accountability for results and rights, PMNCH is working with UNAIDS and the H6, the Health Data Collaborative, Africa CDC with the African Union, DHIS2 and countries through the Health Situation Room concept. This case study seeks to address a knowledge gap in the experiences of countries to date in implementing Health Situation Rooms. The case study is intended to serve as an aid to countries seeking to implement the Health Situation Room and for South-South learning among the existing countries.

The Case Study is based on a review of 49 Situation Room related documents, 26 interviews with implementers and sponsors of the Health Situation Room at Global and Country levels, and attendance at the Situation Room forum held in Zambia in May 2018. Key findings from these different data sources were analysed and coded in order to produce the synthesis. A detailed list of documents and respondents is provided below under "Sources".

There are some important limitations to this case study:

- In a number of countries, while the Health Situation Room has been launched there was limited experience of roll-out at the time the case study was conducted. While many important insights were gathered, many of the examples of successes and challenges should be considered as anecdotal and therefore not necessarily representative of what may take place in future roll-outs. In addition, roll-out at scale has not occurred in enough countries to demonstrate concrete impact of the initiative.
- The methodological approach, based primarily on document reviews and telephone interviews, necessarily limits the possible analysis. While the planned number of phone interviews was conducted, a number of additional key respondents were contacted and either did not respond or were not available for interview. As a result, findings from some countries are based on a small number of interviews and documents.
- One country visit was carried out to collect data for this study. Although dates were agreed in advance of the visit to Kenya in September, last minute events meant that most of the intended respondents were not available to meet, and as a result no operational demonstration of the Kenya Situation Room was observed.
- Document review and interviews were carried out between June-August 2018 with a view to presenting this case study at a meeting initially planned for November 2018. Many countries have advanced in their implementation since the research was carried out.

Situation Room Countries to date: key features

	Cote d'Ivoire	Kenya	Lesotho	Namibia	Uganda	Zambia	Zimbabwe
Launch date	March 2018	September 2015	May 2018	Oct 2018	March 2018	March 2018	March 2018
Institutional leadership	Initially national AIDS programme, then transitioned to Ministry of Health	Nat AIDS Control Council	Ministry of Health – Directorate of Planning and Statistics	Ministry of Health – National AIDS Control Programme Response M&E division	Uganda AIDS Commission and Ministry of Health (joint ownership)	Ministry of Health	Nat AIDS Council and Ministry of Health HIV unit; transition to Ministry info division
Health focus areas	HIV, TB, Malaria, SRMNCAH	HIV, SRMNCAH	HIV, TB, SRMNCAH	HIV, TB, SRMNCAH	HIV, TB, SRMNCAH	HIV, Malaria SRMNCAH, TB	HIV, TB, SRMNCAH
Data sources included	DHIS2, LMIS, Patient electronic records, Lab Data	DHIS2, LMIS, AIDSInfo, Spectrum	DHIS2, Spectrum	DHIS2, LMIS	DHIS2, Spectrum, CPHL; estimates; programme data	DHIS2, AIDSInfo, Spectrum	DHIS2
Implementation and usage	Screen displays in key offices (national and regional level); tablet devices for decision makers. Includes office of the President, the Vice-President, the Prime Minister and the Minister of Health	Visualisations of aspects at national and county level incl HIV burden; ART Scale Up; Commodity stocks by Facility; 1st and 4th ANC Visit; assisted deliveries Nat level: Presidency, CS, PS, DMS, NACC, KEMSA and MoH); County level (Governors, County Health Management Team)	Embedding of data in websites and printed charts where display screen is not available.	Early stages	Access to analytics tools - use of mobile devices like phones and tablets; also public access Web Portal given complexity of app / search interface	Customized dashboards e.g. for President, Vice President, Secretary to Cabinet, Minister of Health, Program Managers/Officers, Local Authorities covering various disease burden. Triangulating outcomes and inputs (e.g. visualising malaria incidence against ITN distribution)	

	Cote d'Ivoire	Kenya	Lesotho	Namibia	Uganda	Zambia	Zimbabwe
Unique features	Inclusion of cervical cancer screening	Decentralised – 14 counties trained	Use of Spectrum as denominator for ART results		Inclusion of viral suppression and inclusion of Situation Room in National AIDS Strategy. Physical Situation Room in DG's office.	Inclusion of test and treat data Back up from Zambia Smart Institute	HIV Key population prevention indicators
Costs to date (USD at Oct 2018)	$70K Additional funds from CDC	$179k Government of Kenya co-financing	$72k Funding likely from partners	$62k	$70k Several potential funders including government	$71k Multiple potential funders	$49k
Key future plans	Addition of HIV estimates and patient/service user feedback data	Programme coverage indicators; addition of education, financing, and community indicators	MCH indicators; LMIS; Blood Safety Info System; Laboratory Info System; Education Info System; Social Assistance	Procurement data; TB and malaria; key prevention indicators e.g. AGYW, Key populations; early warning indicators	In-country hosting of server; expansion of indicators including OVC; DREAMS; LMIS; SRH/HIV/Gender; TB/HIV; malaria; Financial Data Subnational roll-out	Roll out at provincial/district level. Inclusion of viral load, LMIS and surveillance Migration to hosting in Zambia Development of situation room application for other sectors (education, agriculture)	Launch Inclusion of LMIS, HIV Estimates, Community intervention data

At-a-glance summaries: Achievements, Challenges, and Future Directions

Achievements	Challenges	Future Directions
✓ Interest and commitment from high level national leaders. Leaders including heads of state have promoted and launched Situation Rooms in most countries. ✓ Enhanced collaboration between different health programmes and domains at country level. Country Situation Rooms have demonstrated ways in which different health programmes can be taken out of their silos leading to a more integrated approach to tracking health progress. ✓ Demand for improvements in performance led by decision-makers. The visual representation of achievements and gaps has spurred decision-makers to engage with data and follow up on identified problems. ✓ Improvements in data quality. By visually displaying outliers and anomalies the Situation Rooms have helped identify data quality issues and incentivised operators to improve data quality. ✓ Increased data use for decision-making. There are a number of examples of data being a key port of call for decision-makers, suggesting an improved culture of data use. ✓ Improved data sharing between different actors at national and regional levels. Clear agreements and policies on data sharing have helped build trust and collaboration; triangulation of data sources has led to more probing insights.	✓ Turnover in staff and leadership. In some countries the initial engagement of high-level leaders has been compromised due to turnover and shifts in postings. At operational level some key trained operators have been reassigned to different roles. ✓ Interrupted momentum. Due to operational and budgeting constraints, Situation Room launches in some countries have not been followed up immediately with the operational phase, or due to the emergence of other priorities. ✓ Speed and quality of data. While Situation Room implementation has helped pinpoint data quality issues and catalysed improvements, this has not always been the case, particularly when resources for strengthening data collection are not available. ✓ Maintenance. The Situation Room initiative is learning iteratively about the challenges of integrating data from different sources. Strong "back-end" support is needed to ensure the Situation Room keeps up with regular changes to source data. ✓ Ownership. While launch and implementation has benefited from strong country ownership, some countries expressed a desire to gradually take over and host data integration layers themselves. ✓ User capacity. While the principle of the Situation Room is for it to be an easy-to-use tool, early experiences in some cases suggest that more work is needed to ensure the interface is intuitive and fits the needs of decision-makers. ✓ Potential unexpected consequences. Because some health data relates to stigmatised or marginalised groups, there are some concerns about the risk of data being used to identify locations leading to harassment.	✓ Improving functionality and tailoring of the Health Situation Rooms. This includes integration of new data in all countries, with inclusion of financial data on health investments a particularly exciting development. ✓ Expanding the user base – in particular for public accountability. The potential for the Situation Room to make performance data more accessible to the public has been recognised. Implementers see this as a source of greater accountability, feedback and benchmarking between different health system actors. ✓ Strengthening national ownership and sustainability and building on the regional potential with the African Union. Regional peer support teams, as well as collaborations to strengthen cross-country efforts on epidemic preparedness (via Africa CDC) and sexual and reproductive health rights are planned and underway.

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Interviews conducted

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Charles Otai	*M&E Officer, Uganda AIDS Commission*
Carol Kamasaka	IT, MOH Uganda
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