Logical Outcomes

A monitoring and evaluation platform for nonprofits: DHIS2 Quick Start

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About LogicalOutcomes

The problems with monitoring and evaluation

Not all evaluation is effective

Monitoring and evaluation systems often fail: They tend to go wildly over budget, or over schedule, or don't deliver what they promised, or all three. Even when they are implemented correctly, there is little evidence that they improve program effectiveness.* Yet funders expect nonprofits - even small ones - to evaluate their programs as though it's a simple task. Why are M&E systems so difficult to implement? And how can we make them less expensive and more useful?

There are so many problems with the usual approaches …

In our experience, drawn from 25 years of working with funders and agencies:

- Agencies create logic models that are uninformed by research because they don't have the resources to review the research literature.
- Services are based on untested assumptions, imitations of other unevaluated programs, or 'the way things have always been done'.
- Funders require agencies to design evaluation plans but don't have the expertise to assess them for feasibility or usefulness.
- Evaluators tend to select indicators that are technically weak, and in any case, agencies don't have the capacity to collect the data.
- Even when agencies collect service data, they do not have the capacity to test its quality, aggregate it and report it to users in a way that supports decision-making.
- Narrow funder-defined goals can lead to unethical behaviour.**

*Powers, L.C. (2009). A framework for evaluating the effectiveness of performance measurement systems. RealWorld Systems Research Series 2009:1. Available at SSRN: http://ssrn.com/abstract=1371158
**E.g., Ethical breakdowns (2011) Bazerman and Tenbrunsel, Harvard Business Review, https://hbr.org/2011/04/ethical-breakdowns

Difficulties in implementing M&E systems

LogicalOutcomes interviewed over 40 staff and consultants at nonprofits in Canada, the U.S., Europe, Asia and Africa and several software vendors.*

We also reviewed the research literature on M&E software implementations for nonprofits using Google Scholar, and reviewed web forums and news groups devoted to monitoring and evaluation.

There was broad consensus that large scale M&E implementations are very difficult to manage, ***regardless of the software****.*

Most monitoring and evaluation (M&E) implementations go over budget, over schedule, or don't deliver what they promised

M&E systems are difficult to implement because of the lack of standards around outcomes and indicators. Every funder and nonprofit uses different definitions, and each must define its indicators from scratch.

Organization-wide data aggregation requires sophisticated meta-data management & data models

It is relatively simple to collect data for a single project and a single funder.

As soon as a nonprofit needs to report to multiple funders or combine data across different programs, it is a completely different challenge. And most nonprofits do not have the expertise to manage the added complexity.

Nonprofits move too quickly to software implementation and get paralyzed

Nonprofits tend to select a software program with the mistaken idea that it will solve their evaluation needs. In fact, most of the work involves the definition of indicators, reports, user permissions and other elements that don't depend on any particular software. Software developers don't have the expertise to define indicators, and the project gets stuck.

Neither nonprofits nor vendors are satisfied with the implementation of M&E systems

Because nonprofits have an unrealistic concept of the complexity of M&E systems, implementers feel frustrated and unappreciated.

Project managers report that their own managers don't appreciate their efforts, vendors report that nonprofits expect unreasonable deliverables for the budget, and nonprofits report that they sink vast amounts of money with unsatisfactory returns.

* Much of this research was done for SNV - Kerr, G. 2015. PME software and functions after 2015. Unpublished report, SNV.

Summary of comments from nonprofits on M&E implementations

Organization-wide M&E implementations are extremely difficult and the time and costs are underestimated

It takes a minimum of 18 months for organization-wide implementation

No software is ideal, all of them are buggy, and all of them require compromises

There is a direct trade-off between flexibility (ability to customize) and ease of use

Mobile data collection is essential for adequate data quality

Implementations require M&E skills as well as skills in rolling out technical processes

Difficulty of M&E implementation

Organization-wide M&E systems are comparable to Enterprise Resource Planning (ERP) implementations. In some ways they are more difficult because of the lack of common vocabulary in M&E. Major points:

- ❑ For a full organizational M&E implementation, count on a minimum of 18 months and many frustrations.
- ❑ Full implementations should be championed by a member of executive/leadership team.
- ❑ Much of the development time would be essentially the same for any software tool. Defining well-designed indicators, aggregation categories, data validation rules, data entry forms and reports are essential and time-consuming tasks.
- ❑ Nonprofits are struggling with trade-offs between flexibility, the ability to aggregate data across projects, and ease of use.
- ❑ There is a growing interest in sharing templates and indicators among nonprofits to decrease the costs of M&E implementations.
- ❑ M&E implementations require staff or consultants with technical skills in designing good indicators.

Selecting software

- ❑ M&E requirements are so complex that no single software program can meet all of them.
- ❑ Every software program will require workarounds and compromises unless you are willing to invest large amounts of money on custom development.
- ❑ If you want customization, ensure your software has a well-defined roadmap and the ability to negotiate with the developer or hire your own developers.
- ❑ You cannot have both flexibility and ease of use in an enterprise data management tool. Small differences in wording create massive headaches at an enterprise level if you are trying to aggregate data.
- ❑ Mobile data collection tools are essential for improving data quality but you can combine two software programs for that.
- ❑ Look for the ability to aggregate data in different ways to meet needs of funders & global office.
- ❑ To reduce complexity, consider adjusting your processes around the software's capabilities rather than customizing the software. See if you can accept off-the-shelf functionality.

Comparison of monitoring and evaluation software

Selecting software for monitoring and evaluation

Dozens of software programs claim to provide monitoring and evaluation. LogicalOutcomes carried out a comparison of over 35 of them, including platforms like SalesForce, SharePoint and Microsoft CRM as well as specialized programs like DevResults, ActivityInfo and DHIS2.

We based the analysis on a list of needs that we identified by interviewing 40 staff in international and Canadian nonprofits.

The needs covered:

- ❑ Design of an evaluation framework
- ❑ Data collection
- ❑ Reporting
- ❑ Implementation and roll-out
- ❑ Flexibility and resilience
- ❑ Building local capacity
- ❑ Cost

See the summary of the requirements in the next three pages. Only one software program satisfied all of them: District Health Information Software (DHIS).

Software requirements.1

Monitoring software is complex, so we assume three levels of expertise at the agency:

Power-users are agency staff who are familiar with the software. They don't need to be software programmers.

Project managers are agency staff who are given 3 to 4 hours of training, mostly to create reports.

Basic users just enter data or view dashboards.

Capture theories of change and indicators for each program

- ❑ Can power-users create logic models and evaluation frameworks during proposal development and then revise them at project setup?
- ❑ Can power-users create or select indicators for programs, allowing aggregation in different combinations (e.g., age groups and gender) to meet the differing needs of funders?

Collect data

- ❑ Are basic users provided help to collect data with an adequate level of quality, including data collection tools and automatic validation rules?
- ❑ Can basic users easily enter and process data on a mobile device (smartphone) or web form?
- ❑ Can basic users collect information about individual service users and/or events, or qualitative information, or rating scales?
- ❑ Can power-users design data entry forms with indicators disaggregated by different categories (e.g., age, location, program, etc.) based on funder requirements?

Report information

- ❑ Can power-users build automated monthly reports that meet agency needs?
- ❑ Can project managers quickly design customized reports for individual funders to meet their changing reporting requirements?
- ❑ Can project managers generate and tailor attractive reports, defining various combinations of indicators and time frames, aggregating on many variables, and exporting in PDF or spreadsheet formats?
- ❑ Can project managers easily get information out of the system in flexible formats once it is put into the system, aggregating by program, client type and/or sector?

Software requirements.2

Implement and roll-out

- ❑ Does the software system provide good updated documentation and training materials (e.g. video tutorials)?
- ❑ Can the software run on popular web browsers on all major operating systems?
- ❑ Can power-users make most changes without a software developer's support, including designing the framework, creating reports, revising the data collection instruments, etc.?
- ❑ Can basic users view, enter or download data even when internet connection is not available?

Manage and protect data

- ❑ Does the software protect data integrity from corruption, e.g., when internet connectivity is disrupted?
- ❑ Does the software employ security protocols when transferring data and when data is at rest? Does it follow good practices for protecting confidential information?
- ❑ Is the software updated frequently (a few times a year) using good development practices including a clear and transparent roadmap?

Software requirements.3

Build community capacity and knowledge

- ❑ Can the software measure key elements (e.g., core values, success factors) that are important to the agency and its communities?
- ❑ Can agencies use and adapt the software freely without limitation? Does the software use open standards for importing, exporting and communicating data to support the work of partners?
- ❑ Does the software empower local communities and service providers by giving them more control over their own information and the ability to get insights from it?
- ❑ Does the software provide additional value to agency's contribution by sharing tools and strengthening the capacity of partners? (e.g., promoting local ownership of data)

Cost

- ❑ What is the cost of design, configuration and implementation per project?
- ❑ What is the annual cost per basic user and per project manager, including the expected level of technical support and hosting?
- ❑ How long will it take to train for each role (basic user, project manager, power-user)?
- ❑ How long does it take to create new templates, indicators and elaborate data entry forms?

12 key software requirements

In summary, nonprofits seem to want software that is infinitely flexible, inexpensive to configure and implement, and extremely easy to use.

This is not an unusual set of requests for enterprise software, but it is difficult to achieve. It requires a complex, flexible software platform that supports a variety of user roles and the capacity to develop and share templates. That, in turn, led to a strong preference for open source software that would not be locked down by a vendor.

When we combined the findings from nonprofits and vendors, we identified the following requirements for monitoring and evaluation software programs:

- *Ability to create complex indicators*
- *Ability to collect data on mobile devices*
- *Ability to aggregate data in different combinations*
- *Ability to store, import, export data*
- *Ability to create on-demand attractive and flexible reports*
- *Specifically designed for M&E; does not require extensive customization*
- *Open source and ability to share templates*
- *Used successfully by large international nonprofits*
- *Ability to be configured without software developers*
- *Large community of developers (to prevent vendor lock-in)*
- *Frequent revisions of the software (to prevent obsolescence)*
- *Posted development roadmap*

Software comparison

We identified about 35 software programs through searches on the web, discussion forums and recommendations from nonprofits and narrowed them down to 24 after an initial review. Where possible we requested information from their respective vendors; not all of our questions were answered so there are many gaps in the table.

Only 2 programs satisfied all criteria, and only one of them (DHIS2) was well-tested and mature.

	Minimum features							Additional features					
Software	Create complex indicators that can be grouped in various ways	Collect information using mobile and browser	Aggregate data	Store data	Export and import data	Generate reports and dashboards very flexibly	Designed for M&E (not a general ERP/CRM)	Open source	Frequently updated (at least twice a year)	Large community of developers	Posted roadmap	Used successfully by at least three large iNGOs over multiple countries and projects	Can be configured and revised mostly without a software developer
ActivityInfo	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Aidsbits	✓	✓	✓	✓	✓/✗	✓	✓	✗	✓	✗	✗	✓	
Akvo	✓	✓	✗	✗	✓/✗	✓/✗	✓	✓	✓	✓	✓	✓	✓
Apricot	✓	✓	✓	✓	✓	✓	✓	✗	✓	✗	✓/✗	✗	✓
Assyst							✗					✗	
Kwantu BetterData	✓	✓	✓	✓	✗	✓	✓	✓/✗	✓	✓	✓	✓	✓
Development Gateway	✓	✗	✓	✓	✓	✓	✓	✗	✗	✗	✓	✓	✗
DevResults	✓	✓	✓	✓	✓	✓	✓	✗				✓	
DHIS2	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Kimetrica (ki-projects)	✓	✓	✓	✓	✓	✓	✓	✗	✓	✗	✓	✓	✓
mFieldWork	✓	✓	✓	✓	✓	✓	✓	✗	✓	✗	✗	✓	✓
Microsoft Dynamics CRM							✗						
Newdea	✓	✗	✓	✓	✓	✓	✓	✗	✓	✗	✓	✓	✗
Premise							✗	✗					
Prome	✓	✗	✓	✗	✗	✓	✓	✓		✗	✓	✗	✗
Salesforce							✗	✗	✓	✓		✓	
Sharepoint				✓		✗	✗	✗	✓				
Sigmah		✗		✓	✓	✓	✓	✓	✗	✓	✗	✓	✓
Synergy Indicata	✓	✓	✓	✓	✓	✓	✓	✗	✓	✗		✓	✓
TaroWorks	✗			✗	✗	✓							
Vera Solutions								✗				✓	
WebMo		✗		✓		✓	✓	✗	✓			✗	✗
Workfront, previously AtTask	✓	✓	✓	✓	✓	✓	✓	✓	✓	✗	✓	✓	✓

This table is a simplified summary of our analysis. We used a set of clearly defined tasks to test each software platform. In some cases the platform passed some elements of the test but not others (and was scored with an x and y). We rejected software once we established that they failed in at least one of the 12 key requirements.

It's not entirely about the software

All software programs have serious trade-offs. No nonprofit and no vendor claimed that M&E software implementation was simple.

M&E software can be divided into four categories:

Multifunctional enterprise software platforms like Salesforce, Microsoft CRM, SAP ByDesign, and other CRMS and ERPs. These solutions require extensive customization for M&E implementations and are typically very costly to develop.

Applications built on enterprise software, such as TaroWorks for SalesForce. The applications take advantage of the power of the underlying platform and simplify implementation, but add costs over the base licensing fees and require a significant amount of customization.

Full-featured M&E software programs like DevResults, ActivityInfo, NewDea and District Health Information Software, which try to cover all the major M&E functions. They vary in their usability and flexibility.

Limited-function M&E software programs that can integrate with others to build a full system, such as mobile data collection tools like Akvo FLOW, KoboToolbox and CommCare HQ. They tend to be more user-friendly for the data collection phases at the expense of formal data management.

All of them have been used successfully in some organizations, and have failed in others (as defined by being over budget, over schedule, or not providing the expected functionality).

Typically there is a trade-off between flexibility and ease of use. Software that is quick and easy to configure has less capability in terms of monitoring and evaluation functions.

Even the most expensive software requires a large staff investment from organizations to define outcomes, indicators and data models. As one informant stated, "90% of our work would have been exactly the same if we had chosen another software program".

About DHIS2

What DHIS2 does

Individual data records

DHIS2 enables you to collect, manage and analyse transactional, case-based data records. It lets you store information about individuals and track these persons over time using a flexible set of identifiers. As an example, you can use DHIS2 to collect and share essential clinical health data records across multiple health facilities. Individuals can be enrolled for longitudinal programs with several stages. You can configure SMS reminders, track missed appointments, generate visit schedules and much more.

Excerpted from www.dhis2.org

Data management and analytics

DHIS2 lets you manage aggregate data with a flexible data model which has been field-tested for more than 15 years. Everything can be configured through the user interface: You can set up data elements data entry forms, validation rules, indicators and reports in order to create a fully-fledged system for data management. DHIS2 has advanced features for data visualization, like GIS, charts, pivot tables and dashboards which lets you explore and bring meaning to your data.

Reporting

DHIS2 lets you explore and understand your data through great visualization features. Get the complete overview through the pivot table feature, spot trends in your data with charting and visualize your geographical data aspects using the GIS functionality.

About the software

Based on community empowerment principles

DHIS2 is an open source program that has been in development for over 20 years. It emerged in post-apartheid South Africa in 1994 as a collaboration between local public health activists and Scandinavian action researchers. Its mission: To build the capacity of local communities while contributing to an effective national health system. It is now used in many applications beyond health.

Stable and well-supported

DHIS2 releases new versions every three months. It is supported by the University of Oslo, plus an international network of experts and consultants. It is funded by NORAD, PEPFAR, the University of Oslo, the Global Fund, CDC, Gates Foundation etc. and is accompanied by detailed documentation, video tutorials and training materials. A free online Academy is being launched in early 2016.

Resilient

DHIS2 is designed to handle intermittent internet connections and low cost data collection. Agencies can collect data offline with free phone apps or light-weight feature-phone browsers and upload it when the internet is up. They can download their own data and work with it, syncing when they wish.

Flexible

DHIS2 is designed to aggregate data that is gathered in multiple formats and locations. It can import and export data through csv files or a web API. It also provides built-in data collection apps for individual client tracking.

Decentralized

DHIS2 is designed to be independent of any one organization. Expert nodes have been set up in India, Vietnam, Malawi, Namibia, South Africa and several other countries to ensure that local expertise can develop. The University of Oslo has supported dozens of graduate students from developing nations to carry out research on health systems using DHIS2.

Implemented in 47 countries

DHIS2 is massively scalable. One instance can support:

- *8 million women and children registered in Bangladesh*
- *75,000 reporting organizations and field offices in PEPFAR*
- *45,000 field offices and org units in PSI*

National standard for Health Management Information Systems in 20 countries. The uses go well beyond health, though:

Health programs - HIV, TB, Malaria and more

Logistics - Uganda, UNCOLSC

Facility registry - OpenHIE

Facility surveys - SA Core Standards/WHO SARA

Disease surveillance - CDC Global Health Security, Ebola outbreak

Education - Dean's Dashboard

Food security - Bangladesh

Case-based registers - Ghana, Kenya

Water and sanitation - Zambia, DRC

Tracking of pregnant women and children - Uganda, India

Tracking of TB patients – Rwanda

Social franchising - PSI, MSI

Licensing of medical doctors - Vietnam

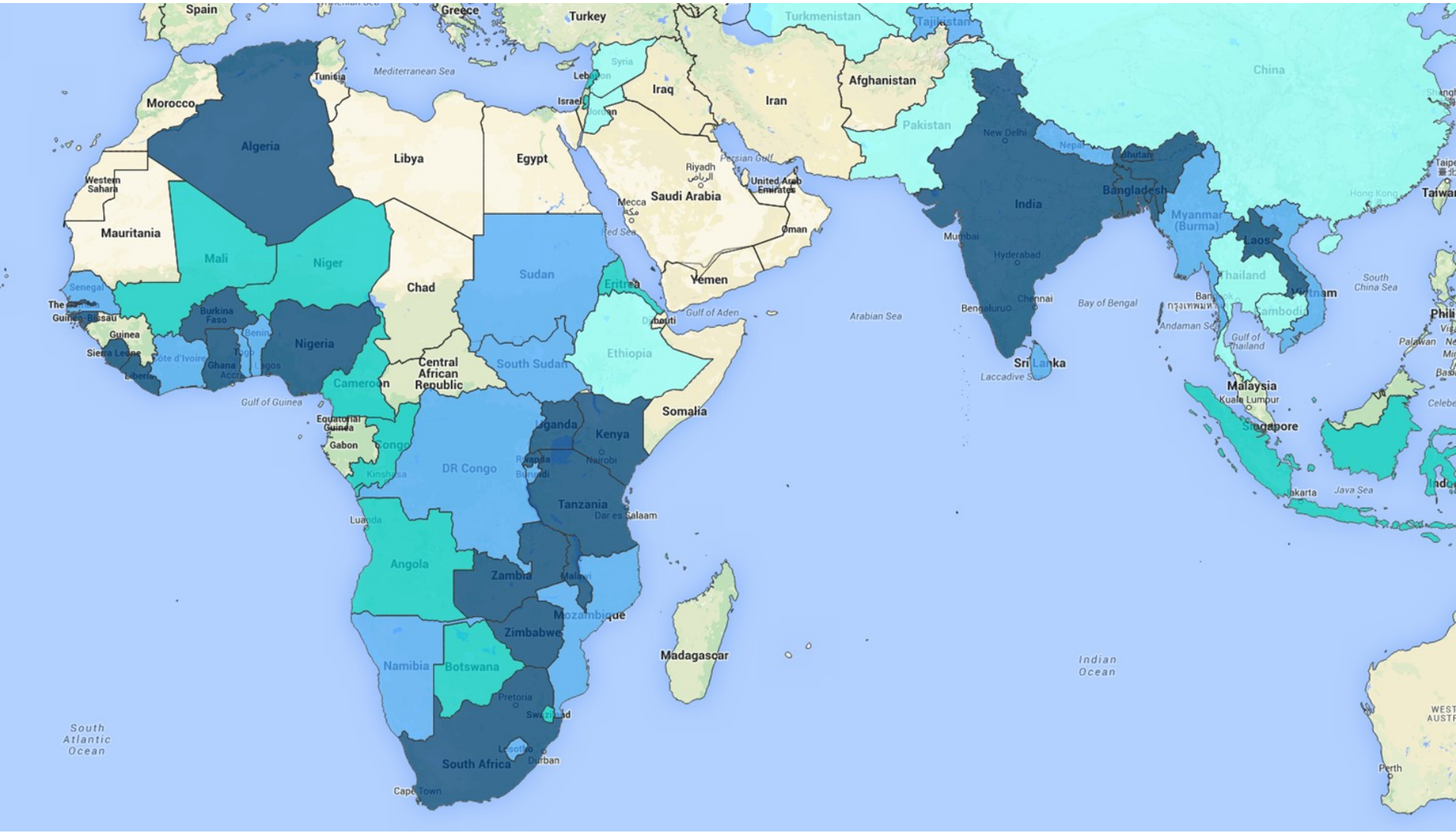
Forestry - Rwanda

Finance - Rwanda Health Finance

Results based finance - Bluesquare / Benin

Logical Outcomes

DHIS 2 Adoption



Partners Pilot/early phase Scaling up Nation-wide rollout

Implemented by dozens of NGOs

Service providers

Population Services International (PSI)

Médecins Sans Frontières (MSF)

International Rescue Committee (IRC)

Futures Group

IMA World Health (IMA)

Management Sciences for Health (MSH)

EngenderHealth

Marie Stopes International (MSI)

Family Health International (FHI 360)

ICAP

Africare

American Leprosy Missions

Global initiatives

World Health Organization - Program dashboards, Malaria, DQA tool

UNICEF - HQ / Data use in countries

Economic Community Of West African States (ECOWAS)

East African Community (EAC)

PEPFAR - DATIM

Global Fund - Support in 10+ countries

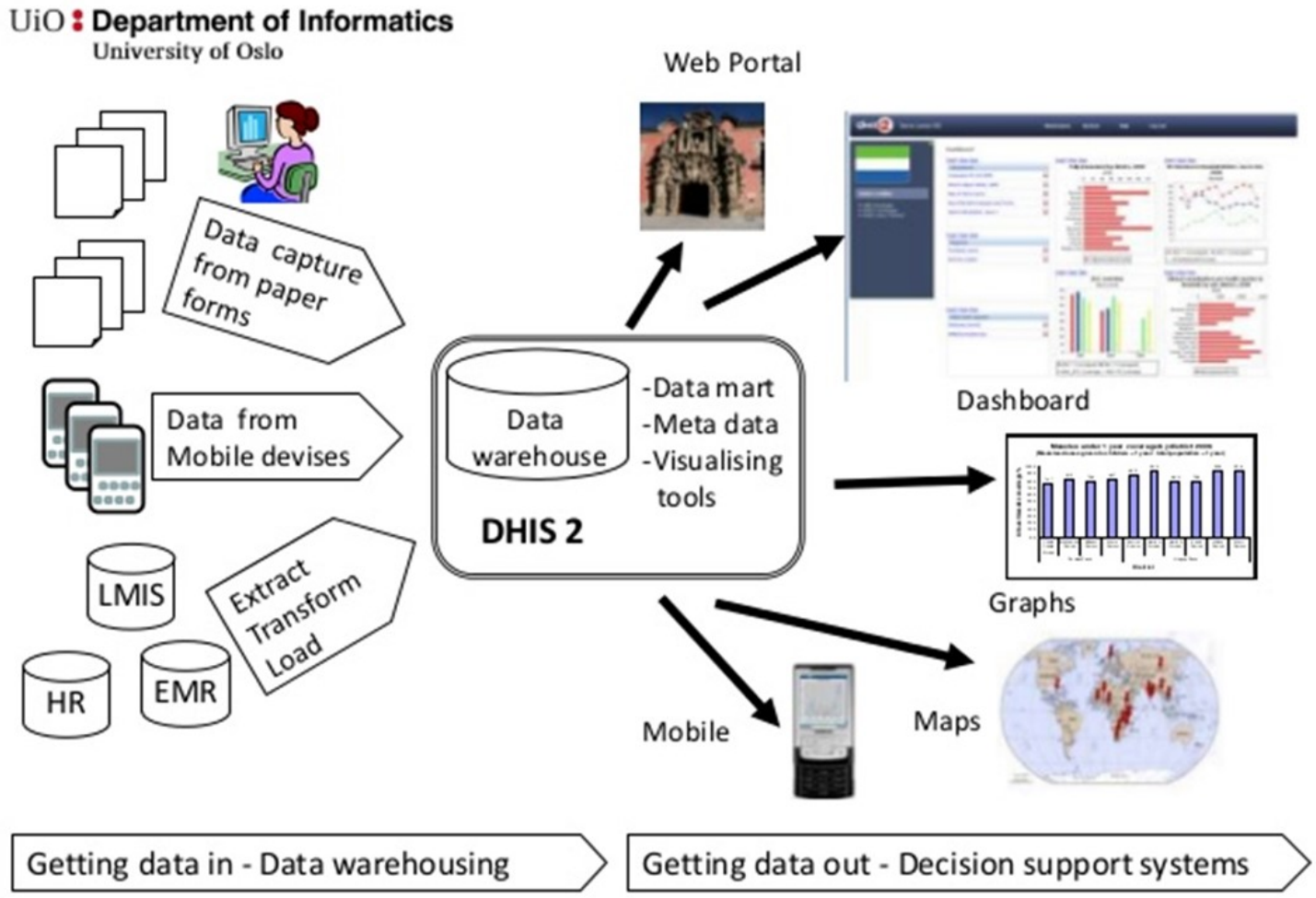
USAID - Nigeria PEPFAR reporting

CDC - Global Health Security

UNAIDS - National HIV programs

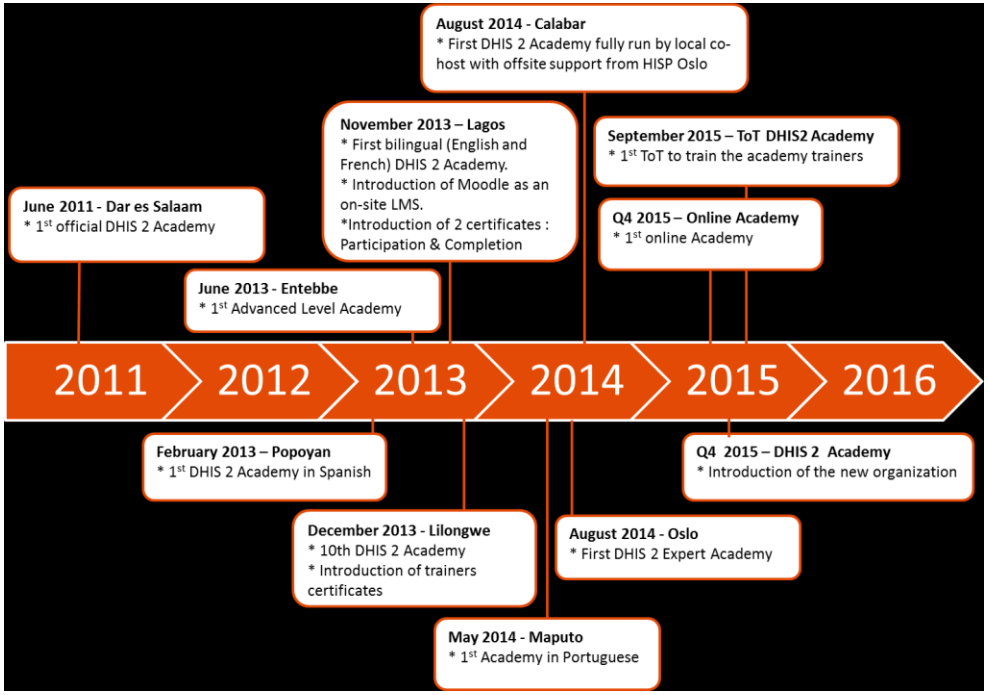
From University of Oslo, Expert Academy, 2015

DHIS2 is an open platform



From http://www.slideshare.net/dhis2/global-citizen2

Committed to training and support



In January 2016, University of Oslo HISP is launching an online DHIS2 Academy

- ❑ It will use Open edX, a MOOC platform developed by MIT.
- ❑ It will probably be no cost for access to the courses, and may charge a fee for certification.
- ❑ The first course, Fundamentals of DHIS2, is being tested in September.

Oslo will continue to promote a network of DHIS2 experts

- ❑ See Expert Community at https://www.dhis2.org/expert-community
- ❑ Two LinkedIn groups (for users and experts)
- ❑ Two Launchpad newsgroups (for users and developers)

Documentation and sharing will continue to improve

- ❑ Launch of Trainingland, a demo of DHIS2 designed for training that will replace the Sierrra Leone demo
- ❑ A sharing group for apps, spreadsheets etc. that the community is setting up
- ❑ A growing interest in templates

Online Academy - session

Course Overview & Getting Started

- Welcome to DHIS 2 Fundamentals: Data collection
- Practical Information
- Now it's your turn

Session 1 - From paper forms to datasets

Section 2 - Context of the form

Session 3 - Analyses of the form

Session 4 - Organisational hierarchy

Section 5 - Data elements

Section 6 - Creation of the form

Section 7 - Wrapping up

GHANA GHSDHIMS.ORG - AN AFDB 2013 AWARD WINNER ON EHEALTH!

Let's watch this video of a real use case of DHIS 2 implementation. Since April 2012, Ghana has been using DHIS 2 nation-wide with a fully online deployment led by the Ghana Health Service. In 2013, this DHIS 2 implementation won the The African Development Bank eHealth competition. In this video, produced by NORAD, Anthony Ofusu and Denis Adaletey from Ghana Health Service and Professors Jørn Braa and Kristin Braa from University of Oslo are telling you about DHIS 2 and it's adoption in Ghana.

VIDEO - SESSION 0 - GHANA USES DHIS 2

To enjoy a good health makes for a better quality of life

To create satisfactory health care the authorities need to have a clear view

of how the health system works. For example

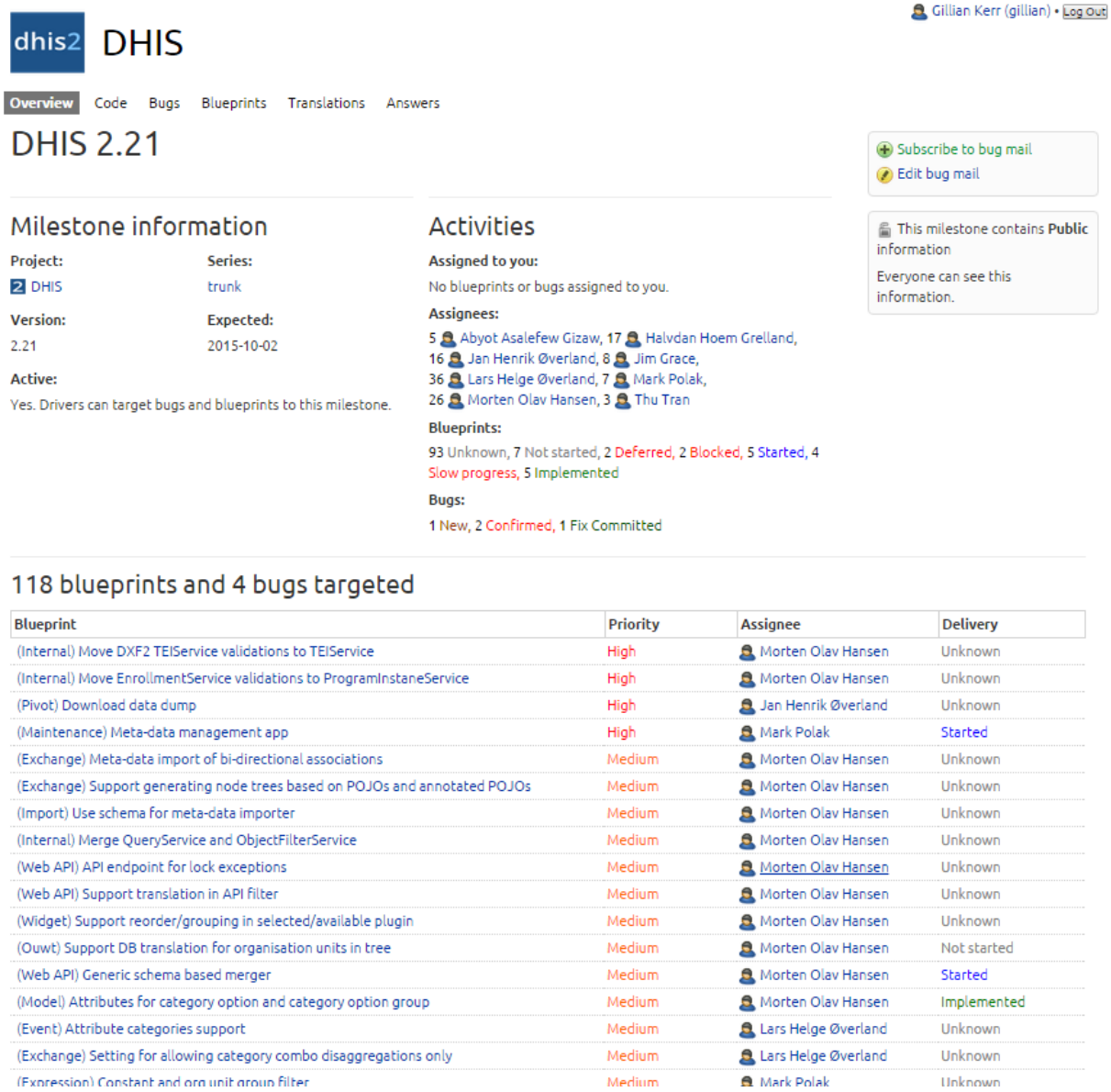
they need to know how many children are vaccinated and whether clinics have

enough medicine in stock

to cover people's needs. With this

Download video | Download transcript | .srt

New versions every 3 months



dhis2 DHIS

Gillian Kerr (gillian) • Log Out

Overview | Code | Bugs | Blueprints | Translations | Answers

DHIS 2.21

Subscribe to bug mail
Edit bug mail

This milestone contains **Public** information

Everyone can see this information.

Milestone information

Project: DHIS
Series: trunk
Version: 2.21
Expected: 2015-10-02
Active: Yes. Drivers can target bugs and blueprints to this milestone.

Activities

Assigned to you:
No blueprints or bugs assigned to you.

Assignees:
5 Abyot Asalefew Gizaw, 17 Halvdan Hoem Grelland, 16 Jan Henrik Øverland, 8 Jim Grace, 36 Lars Helge Øverland, 7 Mark Polak, 26 Morten Olav Hansen, 3 Thu Tran

Blueprints:
93 Unknown, 7 Not started, 2 Deferred, 2 Blocked, 5 Started, 4 Slow progress, 5 Implemented

Bugs:
1 New, 2 Confirmed, 1 Fix Committed

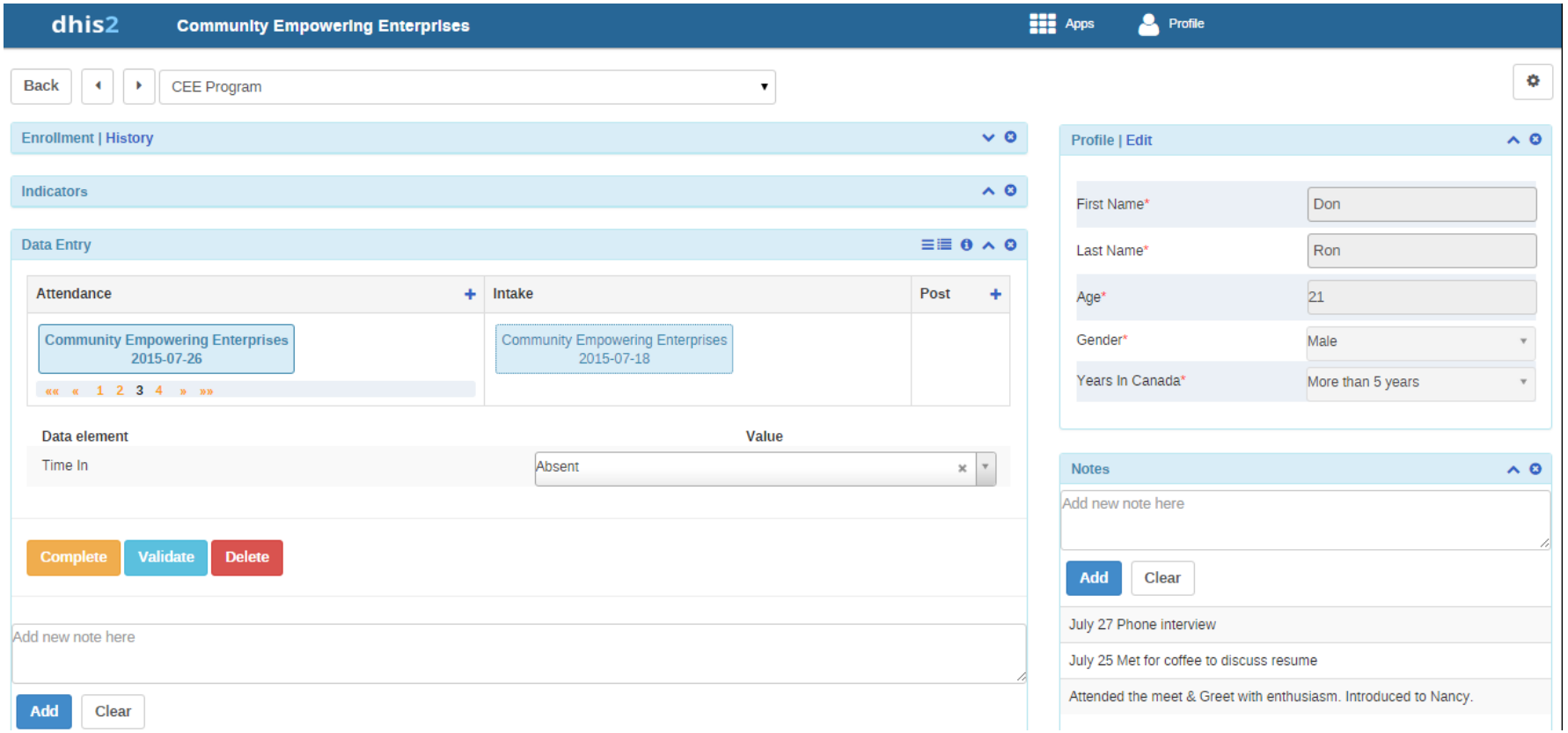
118 blueprints and 4 bugs targeted

Blueprint	Priority	Assignee	Delivery
(Internal) Move DXF2 TEIService validations to TEIService	High	Morten Olav Hansen	Unknown
(Internal) Move EnrollmentService validations to ProgramInstaneService	High	Morten Olav Hansen	Unknown
(Pivot) Download data dump	High	Jan Henrik Øverland	Unknown
(Maintenance) Meta-data management app	High	Mark Polak	Started
(Exchange) Meta-data import of bi-directional associations	Medium	Morten Olav Hansen	Unknown
(Exchange) Support generating node trees based on POJOs and annotated POJOs	Medium	Morten Olav Hansen	Unknown
(Import) Use schema for meta-data importer	Medium	Morten Olav Hansen	Unknown
(Internal) Merge QueryService and ObjectFilterService	Medium	Morten Olav Hansen	Unknown
(Web API) API endpoint for lock exceptions	Medium	Morten Olav Hansen	Unknown
(Web API) Support translation in API filter	Medium	Morten Olav Hansen	Unknown
(Widget) Support reorder/grouping in selected/available plugin	Medium	Morten Olav Hansen	Unknown
(Ouwt) Support DB translation for organisation units in tree	Medium	Morten Olav Hansen	Not started
(Web API) Generic schema based merger	Medium	Morten Olav Hansen	Started
(Model) Attributes for category option and category option group	Medium	Morten Olav Hansen	Implemented
(Event) Attribute categories support	Medium	Lars Helge Øverland	Unknown
(Exchange) Setting for allowing category combo disaggregations only	Medium	Lars Helge Øverland	Unknown
(Expression) Constant and org unit group filter	Medium	Mark Polak	Unknown

From https://launchpad.net/dhis2/+milestone/2.21

A simple Client Management System

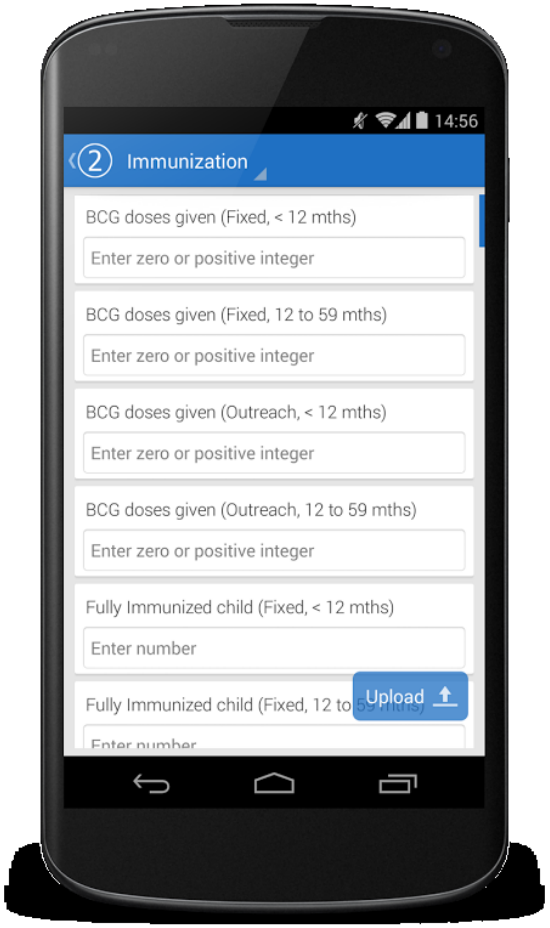
The University of Oslo is investing heavily in the ability to track the progress of individual clients. The 'tracker' can be used to create a basic client management system.

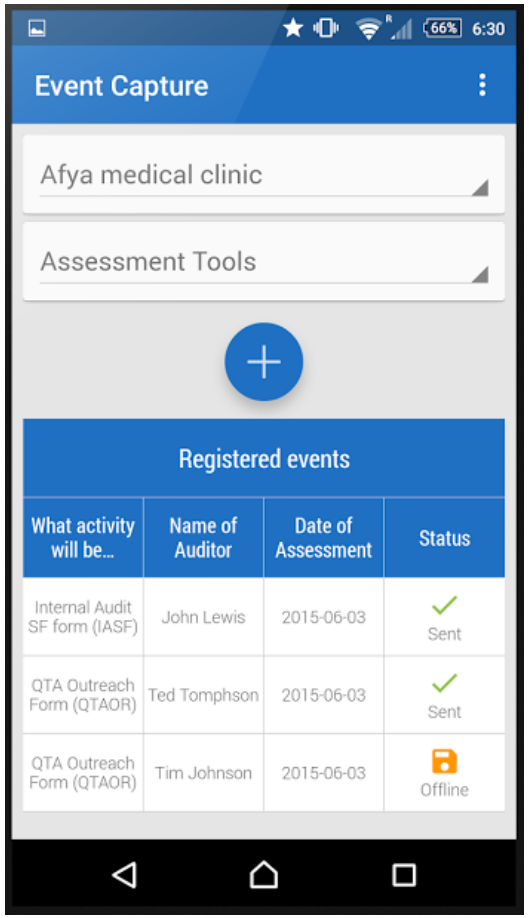


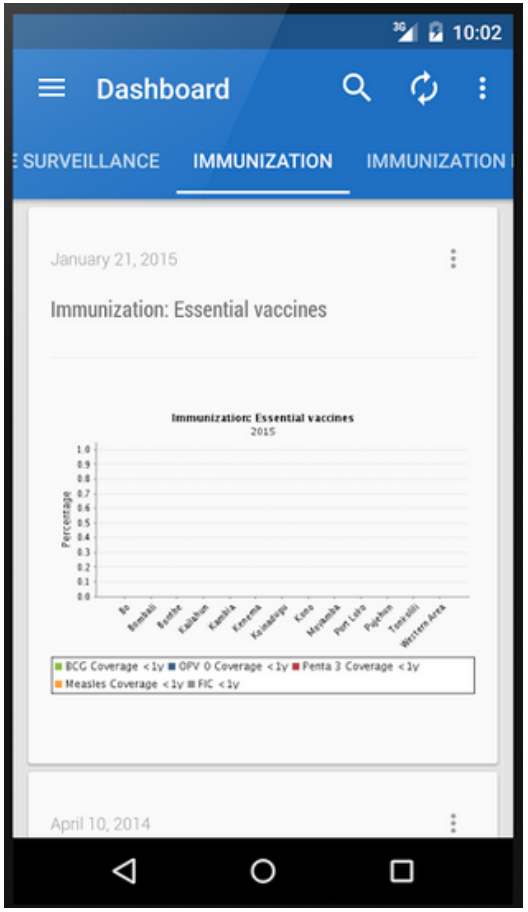
By permission from Community Empowering Enterprises Toronto

Android apps for off-line assessments

Android applications are integrated with DHIS2 and used for client tracking and facility assessments. They can be used off-line (with no Internet access) for weeks or months.







From Google Play store screenshots for DHIS2 apps

DHIS2 Quick Start

An effective approach to monitoring and evaluation

International experience has led to a consensus on the elements of effective measurement systems:

- Defining clear outcomes that can be communicated through indicators.
- Defining effective programs that are informed by evidence and meet local needs and priorities.
- Selecting valid and useful indicators that will actually change the behaviour of managers and funders.
- Defining indicators and measures clearly enough that they can be shared and aggregated across jurisdictions, using standard formats.
- Collecting data securely using tools that do not incur an unreasonable cost burden on front line workers and agencies.
- Validating key information with objective external audits.
- Combining, cleaning and aggregating data from many sources to meet the needs of multiple users.
- Reporting information in various formats to multiple users – funders, donors, managers, communities and partners.

This approach requires many different skill sets all working together. It's really hard to do from scratch.

We have a 3 stage process that will rely heavily on templates.

Workplan

Define Requirements

1. Launch project
Hold kick-off with team, client working group.
Finalize project charter and workplan.
Deliverable: Project Charter

2. Define DHIS2 requirements
Identify decision-makers and user groups.
Interview users and staff regarding M&E needs.
Assess business processes and existing IT system.
Define organizational units, user roles, datasets, reports.
Deliverable: DHIS2 Requirements Worksheet

Define Indicators and Reports

3. Define program indicators
Review and clarify existing program indicators.
Define data elements, disaggregations, option sets
Validate evaluation framework with users.
Deliverable: List of Program Indicators and Data Elements

4. Design reports
Design reports using sample data
Define format of import/export tables and APIs.
Validate report designs with users
Deliverable: DHIS2 Report Worksheet

Set up DHIS2

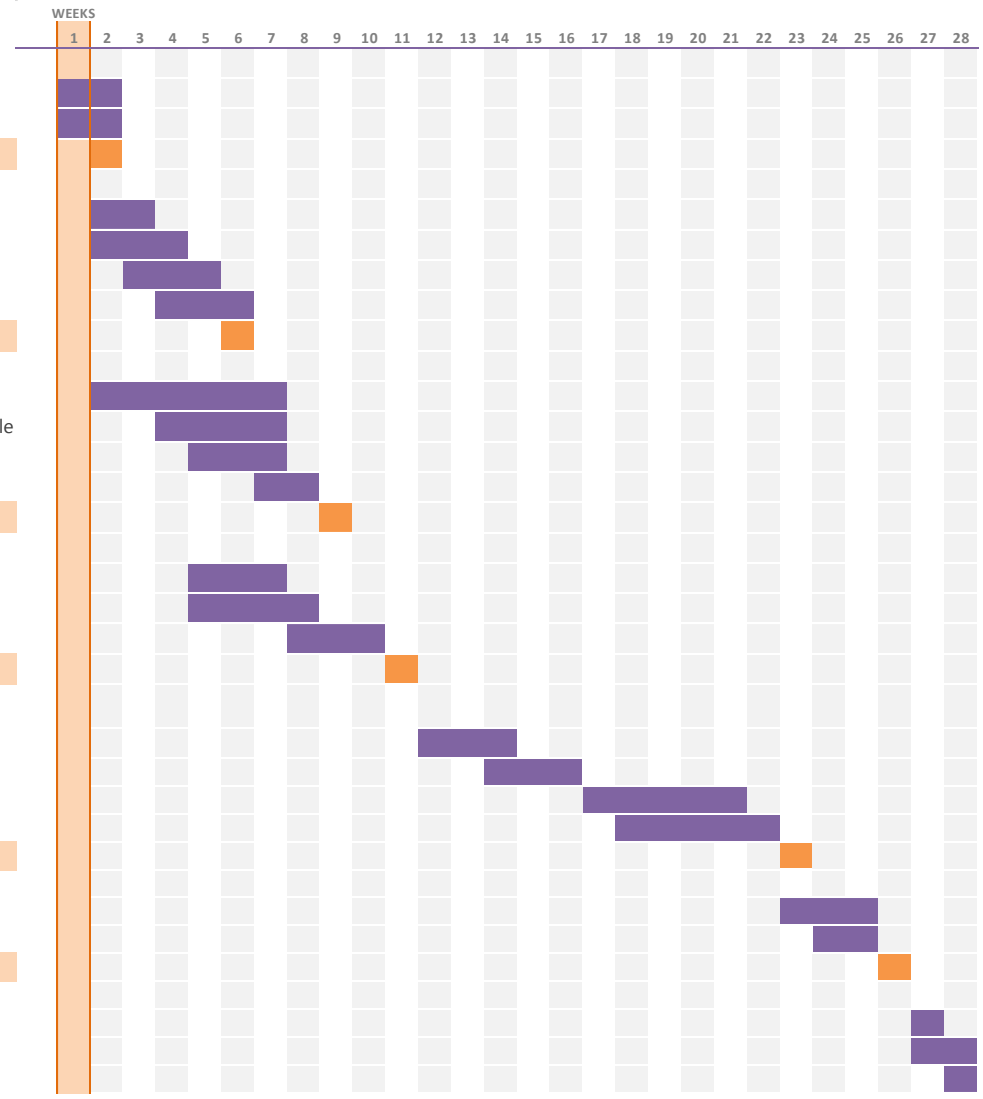
5. Set up DHIS2 system
Configure DHIS2 instance from worksheets.
Test data collection and reporting with internal users.
Pilot test DHIS2 system with selected users.
Collect user feedback & incorporate changes.
Deliverable: Beta version of DHIS2 system

6. Transition to maintenance phase
Deliver training to client staff.
Transfer project to ongoing hosting and maintenance plan.
Deliverable: Working DHIS2 system

Schedule

This schedule would be customized for each project.

ACTIVITY
1. Launch project
Hold kick-off with team, client working group
Finalize project charter and workplan
Deliverable: Project Charter
2. Define DHIS2 requirements
Identify decision-makers and user groups
Interview users and staff regarding M&E needs
Assess business processes and existing IT system
Define organizational units, user roles, datasets, reports
Deliverable: DHIS2 Requirements Worksheet
3. Define program indicators
Review and clarify existing program indicators
Identify relevant indicators from external sources if applicable
Define data elements, dissagregations, option sets
Validate evaluation framework with users
Deliverable: List of Program Indicators and Data Elements
4. Design reports
Design reports using sample data
Define format of import/export tables and APIs
Validate report designs with users
Deliverable: DHIS2 Report Worksheet
5. Set up DHIS2 system
Configure DHIS2 instance from worksheets
Test data collection and reporting with internal users
Pilot test DHIS2 system with selected users
Collect user feedback & incorporate changes
Deliverable: Beta version of DHIS2 system
6. Transition to maintenance phase
Deliver training to client staff
Transfer project to ongoing hosting and maintenance plan
Deliverable: Working DHIS2 system
7. Close project
Finalize project tasks & debrief
Archive or delete files
Document lessons learned



M&E requires a system, not just a software program

Indicators

Indicators are defined using international metadata standards.

Report templates and dashboards

Standard data visualizations, reports and dashboards can be selected from templates.

Survey question bank

Survey questions and data collection forms are available in a survey bank. Agencies are able to select individual questions by filtering for activities, populations and desired outcomes.

Coaching and setup

Design and setup of the system is done in collaboration with agency staff. By the end of an implementation process, staff are able to maintain the system without the vendor.

Data warehouse

Service data are stored in encrypted databases on secure servers with data integrity safeguards.

Data can be imported from other systems, combined, and exported in various formats.

Standard disaggregations

The system provides standard options for categories like age groups, gender and other demographic characteristics. (For example, 'youth' may be defined as ages 14 to 29 or 16 to 35.)

Technical support

Agencies have access to levels of technical support (basic to advanced) at a predictable and reasonable cost.

Estimated pricing

Rock bottom

If you want to play with DHIS2 with a minimum investment, we suggest getting a basic hosting package from Knowarth and some coaching from us.

Estimated cost: About $10,000 for setup, including access to our templates and basic assistance. Any additional help would be charged by the hour (generally between $60-$80/hour).

Hosting on Amazon servers at $52/month.

DHIS2 Quick Start

We recommend a 'quick start' DHIS2 implementation that sets you up with a customized instance for your program that you can change or grow once you get a feel for the system.

Estimated cost: $30,000 for design, setup, training and coaching, testing and launch.

Hosting on Swiss servers at $250/month including 3 levels of tech support with a set budget for support tickets.

Complex multi-program implementations

These projects are like ERP initiatives and tend to be massive. At this point, we suggest beginning with a 'quick start' on one or two programs and then deciding whether to expand DHIS2 across the organization.

We can refer you to other experts if you want to get a price for a full-scale implementation. Prepare for $200-$300,000.

Phase 1. Define requirements

What do you need?

- ❑ Number of indicators, reports and dashboards
- ❑ Existing data that must be imported and combined with new data
- ❑ Number of users and user roles
- ❑ Graphic and UX design of data collection forms
- ❑ Validation rules and skip logic for data import and collection
- ❑ A web portal that dynamically reports on selected indicators for a public audience
- ❑ Enhanced reports that combine multiple data sources and indicators to communicate trends in service delivery
- ❑ Expansions to other projects and regions
- ❑ Survey bank of questions to assess staff, partner and participant engagement
- ❑ Event trackers, to monitor the delivery and efficacy of individual events
- ❑ Client trackers, to track the registration and progress of individual clients (DHIS2 can provide a simple Client Management System)
- ❑ Facility checklists to track program fidelity and quality
- ❑ Registry of all service locations, including services and catchment areas. Facility registries can support flexible reporting by service type, location and so on
- ❑ Geographic mapping of indicators and services
- ❑ Program fidelity checklists and rules engines to track the quality of program delivery based on defined milestones and attributes
- ❑ Training and development instances of DHIS2
- ❑ Technical support and training
- ❑ Online training material customized to your agency
- ❑ Ongoing coaching through the implementation phase

Use spreadsheets to define system requirements

A ‘Quick Start’ approach uses a configuration spreadsheet with individual worksheets including:

- ✓ Indicators
- ✓ Data elements
- ✓ Categories
- ✓ Option sets
- ✓ Indicator groups
- ✓ Data element groups
- ✓ Indicator group sets
- ✓ Organizational units
- ✓ Datasets
- ✓ Report types
- ✓ Organizational roles
- ✓ Users

The configuration can then be finalized manually to capture the complex many-to-many relationships that can be mapped within DHIS2.

Define feasible objectives

Some of these tips are from the research literature (see selected references below) and other are from experienced consultants and project managers of M&E implementations.

Invite (don't force) teams to participate in pilots of monitoring and evaluation tools, and select projects that can tolerate ambiguity and the frustrations that are part of early adoption. Pilots should be championed by critical and knowledgeable project managers.

Focus on user needs. For example, who is actually using the information? When do they need it, and how do they want to report it? Include corporate users (like business development) as well as the project managers.

What are the minimum reports necessary to achieve user objectives? You don't need to solve everything at once. Aim for quick wins and build excitement across the organization by delivering products that work.

Decide how important it is to aggregate high quality information across the organization. If it's important, be aware that the complexity and cost of the implementation is far greater than if you tolerate variations at the local level.

Long term fixed-price contracts are not good at handling complexities and unforeseen situations – a phased approach ensures the nonprofit has a concrete deliverable and gives a basis to estimate the cost of the next phase.

Be willing to work with less-than-perfect datasets. The research literature on DHIS2 implementations* suggest that it is unwise to clean up all of the existing information sources in a system before launching DHIS2. Live with uneven data quality for a while, and clean it gradually. After a few years the old, inaccurate data will be archived.

*https://scholar.google.ca/scholar?hl=en&as_sdt=0,5&q=DHIS2 and http://www.mn.uio.no/ifi/english/research/networks/hisp/Research%20Library/Recent%20Publications and http://www.mn.uio.no/ifi/english/research/networks/hisp/Research%20Library/phd-thesis-list.html

Phase 2. Define indicators and design reports

Defining outcomes by using indicators

International experience has shown that shared measurement systems should get to the level of indicators as quickly as possible. They should be brief, clear, achievable and measurable. Two examples:

The 8 Millennium Development Goals

1. Eradicate extreme poverty and hunger
2. Achieve universal primary education
3. Promote gender equality and empower women
4. Reduce child mortality
5. Improve maternal health
6. Combat HIV/AIDS, malaria and other diseases
7. Ensure environmental sustainability
8. Develop a global partnership for development

Targets for MDG1

1. Reduce by half the proportion of people living on less than a dollar a day
   - Proportion of population below $1 (PPP) per day
   - Poverty gap ratio
   - Share of poorest quintile in national consumption

   ▲ HIDE INDICATORS
2. Achieve full and productive employment and decent work for all, including women and young people

   ▸ SHOW INDICATORS
3. Reduce by half the proportion of people who suffer from hunger

   ▸ SHOW INDICATORS

Millennium Development Goals http://www.undp.org/
Canadian Index of Wellbeing https://uwaterloo.ca/canadian-index-wellbeing

Characteristics of a good indicator - examples

AHRQ (Agency for Healthcare Research & Quality, 2001)	AIMS criteria (The New Economics Foundation, 2000; UNAIDS, 2010)	SMART criteria (Department of Human Services & Community Health Services South Australia, 2002)	WHO Desirable scientific qualities of health indicators (WHO, 1994)
Face validity	Action focused	Simple	Valid
Precision	Important	Measurable	Reliable
Minimum bias	Measurable	Achievable	Specific
Construct validity	Simple	Realistic	Sensitive
Fosters real quality improvement		Timely	Operational
Application			

From Harmonized Reproductive Health Registries (hRHR) Working Group at www.fhi.no/dokumenter/1d23cd1b4e.pdf

Characteristics of a good indicator – summary*

1. Action Focused

"It is clear what needs to be done to improve outcomes associated with this indicator (e.g., immunise to reduce neonatal tetanus)"

2. Important

"The indicator and the data generated will make a relevant and significant contribution to determining how to effectively respond to the problem"

3. Operational

"The indicator is quantifiable; definitions are precise and reference standards are developed and tested or it is feasible to do so"

4. Feasible

"It is feasible to collect data required for indicator in the relevant setting"

5. Simple and valued

"The people involved in the service can understand and value the indicator"

We have added a sixth requirement for the DHIS2 Quick Start:

6. Open access

"The indicator is available at no cost and can be shared freely."

Adopted from Harmonized Reproductive Health Registries (hRHR) Working Group at www.fhi.no/dokumenter/1d23cd1b4e.pdf

Example indicator – GAVI Alliance

DHIS2 provides the ability to use international metadata standards to define indicators.

This allows for standardized measurement systems.

Under five mortality rate	
Indicator ID	1
Definition	The under five mortality rate measures the probability of a child born in a specific year or period dying before reaching the age of five, if subject to age-specific mortality rates for that period. Strictly speaking this is not a rate (i.e., the number of deaths divided by the number of individuals at risk during a certain time period), but a probability of death derived from a life table. This indicator is expressed as the number of deaths among children under five in a given year, per 1000 live births.
Level of disaggregation	N/A
Rationale for use	The under five mortality rate is a leading indicator of child health and overall human development. It is indicative of government commitment to health. The fourth Millennium Development Goal (MDG) indicator is: 'Reduce by two-thirds, between 1990 and 2015, the under-five mortality rate'. The use of this indicator as part of GAVI's strategy reflects GAVI's commitment to contributing to global and country health goals.
How it is measured	This indicator is measured using population weighted estimates from the UN Child Mortality Estimates (CME) for the 73 GAVI countries. Generating accurate estimates of under-five mortality poses a considerable challenge because of limitations in data availability and quality. The UN Inter-agency Group for Child Mortality Estimation (IGME) was established in 2004 to enhance country capacity to produce timely and properly assessed estimates of child mortality. This is led by UNICEF and WHO, and includes the World Bank and United Nations Population Division. The CME take vital registration systems as the preferred source of data on child mortality because they collect information as events occur and cover the entire population. However, many developing countries lack vital registration systems that accurately record all births and deaths. Therefore, household surveys, such as the Multiple Indicator Cluster Surveys (MICs) and Demographic and Health Surveys (DHS), are the primary source of data on child mortality in developing countries. The IGME seeks to compile all available national-level data on child mortality, including data from vital registration systems, population censuses, household surveys and sample registration systems.
Data source	Child mortality estimates from the UN Inter-agency Group for Child Mortality Estimation, and estimates of live births from the United Nations Population Division estimates.
Strengths and weaknesses	A strength of including the under-five mortality rate as part of the GAVI strategy is that this is a key impact indicator used globally for multiple purposes, including the MDGs. This indicator measures the ultimate impact at the population level. A weakness of this indicator is that many other factors beyond the influence of GAVI affect a country's under five mortality rate—including poverty, conflict, nutrition and many other factors. In addition, there are many challenges related to measurement. This indicator may also be slow in responding to policy changes given that it is at the end of a long results chain and frequently measured through surveys which reflect child mortality from earlier time periods.
Useful references	For further information on methodology: http://www.childinfo.org/mortality_methodology.html For current country estimates: http://www.childmortality.org/ For population estimates: http://esa.un.org/wpp/

From Gavi at http://www.gavi.org/results/goal-level-ind

Example indicator - PEPFAR

Prevention of Mother-to-Child Transmission (PMTCT)		
Indicator code: PMTCT_STAT	1	Percentage of pregnant women with known HIV status (includes women who were tested for HIV and received their results)

Purpose:

This indicator reflects one goal of PMTCT, which is to increase the number of pregnant women who know their HIV status. Identification of a pregnant woman's HIV status is the key entry point into PMTCT services and other HIV care and treatment services.

These data will be important to PEPFAR Headquarters, TWGs and USG country-level managers in order to:

- Identify progress toward the overarching global elimination of MTCT goal of reducing the number of AIDS-related maternal deaths by 50% and reducing the number of new HIV infections among children by 90%
- Determine PEPFAR and PEPFAR-funded partners' performance in providing HIV testing to pregnant women
- Identify countries/ partners needing assistance with program implementation

NGI Mapping:		P1.1.D continuing - same indicator; no impact on trend analysis
PEPFAR Support Target/Result Type:		Both Direct Service Delivery (DSD) and Technical Assistance-Service Delivery Improvement (TA-SDI) targets and results should be reported to HQ
Numerator:	1	Number of pregnant women who were tested for HIV and know their results plus number of pregnant women with known HIV status at entry to services.
Denominator:	1	Number of new ANC and L&D clients
Disaggregation(s):	1	**Positivity status:** new positives, known positives at entry
Data Source:		Facility registers and other program monitoring tools.
Data Collection Frequency:		Data should be collected continuously at the facility level as part of service delivery and aggregated in time for PEPFAR reporting cycles. Data should be reviewed regularly for the purposes of program management, to monitor progress towards achieving targets, and to identify and correct any data quality issues.

Method of Measurement:

The numerator is a composite of the following two data components:

1) The number of women with known (positive) HIV infection attending ANC for a new pregnancy over the last reporting period
2) The number of women attending ANC, L&D who were tested for HIV and received results (***These should also be counted in the general HTC indicator "HTC_TST"***)

The numerator can be summed from categories a-d below:

a) Number of pregnant women with unknown HIV status attending ANC who received an HIV test and result during the current pregnancy
b) Pregnant women with known HIV infection attending ANC for a new pregnancy
c) Number of pregnant women with unknown HIV status attending L&D who received an HIV test and result during their current pregnancy
d) Women with unknown HIV status attending postpartum services within 72 hours of delivery who were tested for the first time in the current pregnancy and received results

From http://www.pepfar.gov/documents/organization/240108.pdf

Example indicator – social services

Change in self-perceived ability to keep track of money

Outcome area: Income

Outcome type: Impact, Behaviour, Knowledge-Attitudes-Skills-Aspirations

How to use this document:

Indicator Reference Sheets define indicators in enough detail that they can be used to share comparable data across organizations. Users should select indicators that best fit their organization's needs, then select the most useful options for method of measurement, frequency and disaggregations. Options are rated 1 (Highly Recommended), 2 (Recommended) and 3 (Optional). For information about how to use, create or revise Indicator Reference Sheets, see [DOI reference].

Indicator Code: INC-track_money

Description:

The indicator is a survey question intended to measure the change in a person's control over day-to-day and/or month-to-month finances before and after a program intervention. The indicator could also be used measure changes in the beliefs that an individual has regarding their management over money (i.e., financial self-efficacy), or their skills in money management. Note that it is not an objective measurement of financial control – it asks the participant about their own perceptions.

Rationale:

The indicator is based on a survey question in Statistics Canada's "2014 Canadian Financial Capability Survey" (CFCS) (Statistics Canada, 2014a). The question was adopted by the Financial Consumer Agency of Canada's (FCAC) "Financial literacy self-assessment quiz", a 30-item questionnaire that assesses an individual's financial literacy skills and knowledge. (FCAC, 2015a). It was also included in a 'Personal Financial Literacy Quiz' developed by Prosper Canada (Robson, n.d.).

The CFCS was developed by the Government of Canada over several years in 2006-2009 to measure important aspects of financial literacy and capability among Canadians (Statistics Canada 2006). The survey underwent cognitive testing with focus groups and interviews to ensure the questions were clear and understandable (Statistics Canada 2007).

This same question is also an element in a multi-question scale for 'change in personal assessment of ability in financial management'. It can be reported as a stand-alone indicator, or as part of a composite score. See INC-fin-management [to be developed].

The indicator is suitable for the pre and post assessment of an intervention's impact related to financial empowerment. It is appropriate for use with persons who can comprehend English or French, and are in control of their personal and/or household finances. The survey question is available in French from Statistics Canada and FCAC.

The main advantages of this indicator are that the question:

Draft Indicator Reference Sheet from working document, Prosper Canada and Canadian Bankers Association, 2015.

Indicators will be shared through open access tools

Other metadata standards that can be supported by DHIS2:

IATI (http://iatistandard.org/)

HXL (Humanitarian Exchange Language, http://hxlstandard.org/)

ADX (Aggregate Data Exchange, www.dhis2.org/doc/snapshot/en/developer/html/ch01s12.html)

The challenge

Common measurement systems require shared definitions of indicators, measures and data collection tools. Organizations tend to be reluctant to share this kind of intellectual property, and most funders explicitly forbid open access in their contracts with agencies and consultants. (If you're in doubt about this, check out the legalese in your contracts regarding property rights and ownership.)

As a nonprofit human service sector, we need a way to share freely while recognizing the contribution of authors and sponsors.

How DHIS2 can help

We will assign a DOI (Digital Object Identifier) to each complete and validated Indicator Reference Sheet and/or to a collection of approved indicators through Zenodo, an international research repository.

The indicator itself will have its own license and authorship (e.g., Statistics Canada uses the Open Government Licence – Canada).

Zenodo, as the publisher, will maintain accessibility of the indicator(s) even if the original dataset is taken down.

DOI - http://blog.apastyle.org/apastyle/2014/07/how-to-use-the-new-doi-format-in-apa-style.html
ORCID - https://orcid.org/organizations/funders and http://orcid.org/content/initiative
FUNDREF - http://www.crossref.org/fundref/index.html
ZENODO - https://zenodo.org/features
Open Government License – Canada - http://open.canada.ca/en/open-government-licence-canada?_ga=1.156660539.1898951134.1438269552

Generic logic model

We are using a standard 8-step logic model to provide consistency for coding indicators into the evaluation system. At the top level of the data dictionary are *Indicator Group Sets* divided into four outcome groups and four output groups.

OUTCOMES

1. **Impact** – covering all timeframes from immediate to long term, and that refer to the impact on the intended beneficiary groups. Examples: employment, income, housing status, etc.

2. **Organizational practices** – The desired changes in organizational policies, procedures and practices that are necessary to lead to the desired impact

3. **Behaviours** – individual behaviours among the participants, target group members and/or service providers

4. **KASA** – Knowledge, attitudes, skills, aspirations – for participants and service providers

OUTPUTS

5. **Experience** – satisfaction or engagement from participants and stakeholders

6. **Reach** – the extent to which the program reaches the targeted number and type of participants or audience

7. **Activities** – the program activities

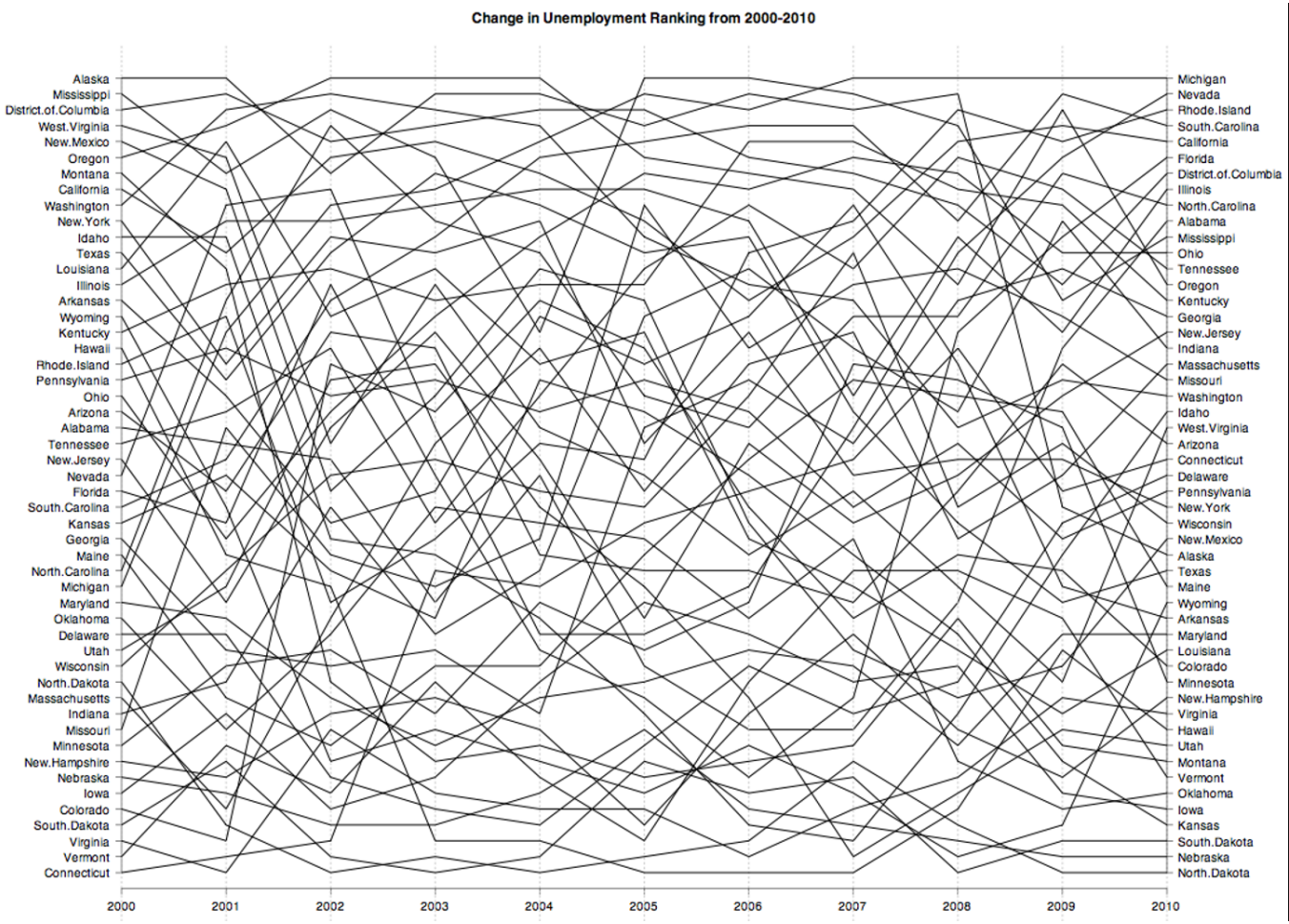
8. **Management** – the extent to which the program is well managed, including financial and human resources

Designing reports that lead to action

Evaluation and data nerds tend to love information.

Senior managers and decision-makers tend to prefer simplicity. If you give them detailed reports, they may not spend the time to understand them.

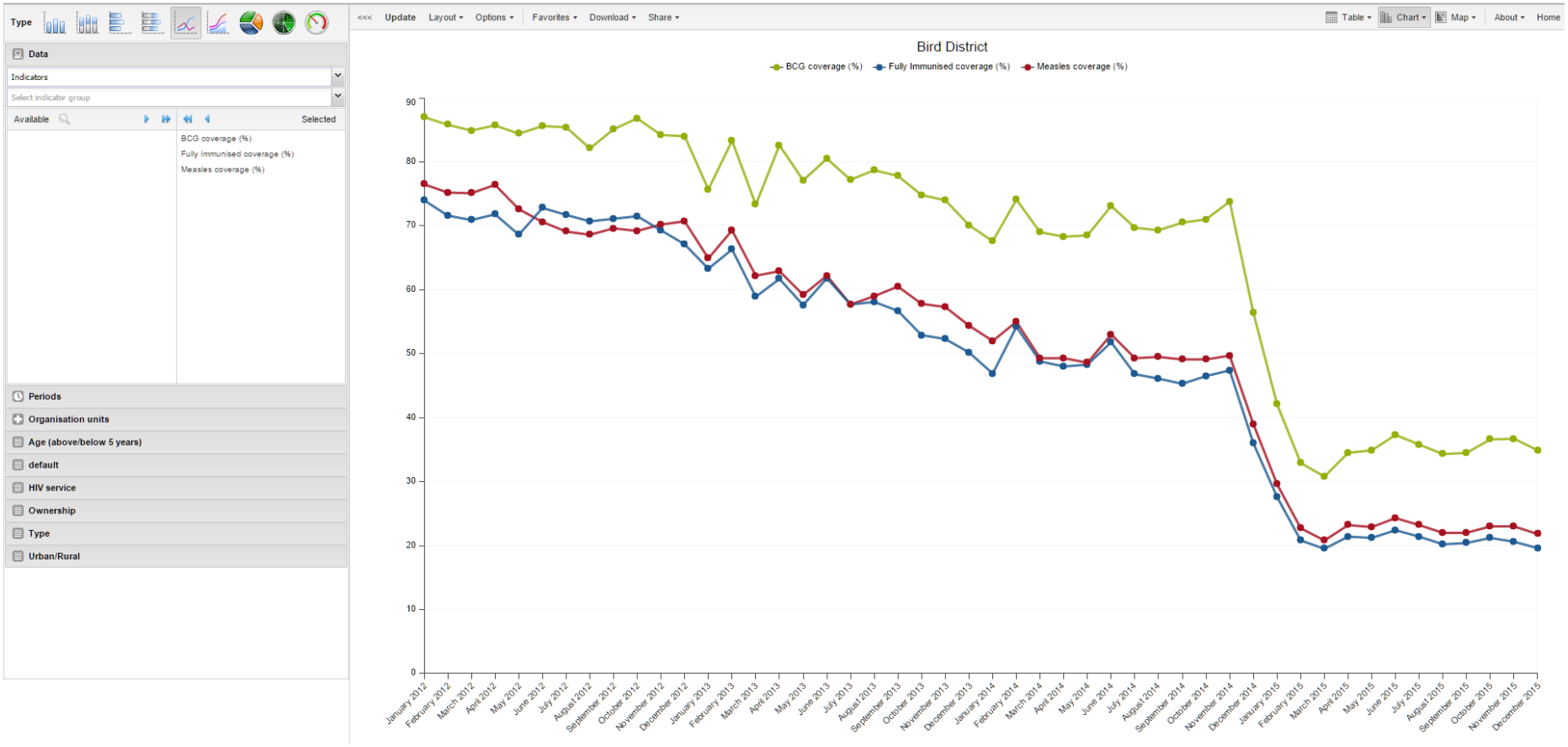
We need to design reports that are relevant, accurate and meaningful to decision-makers.



This is a real chart with real data. From http://junkcharts.typepad.com/junk_charts/2010/08/

Designing reports that lead to action

In this example, vaccinations have fallen in the Bird District. The organization needs to find out why vaccinations have been declining, especially in late 2014, and how to increase the rate again.



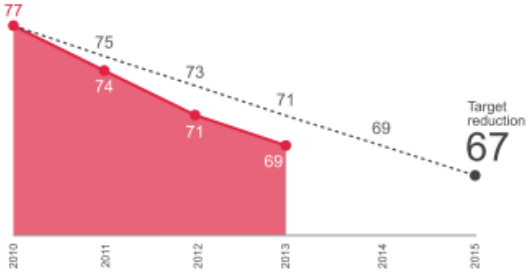
From Trainingland – DHIS2 training site - to be launched in early 2016 on www.dhis2.org

GAVI Vaccine Alliance

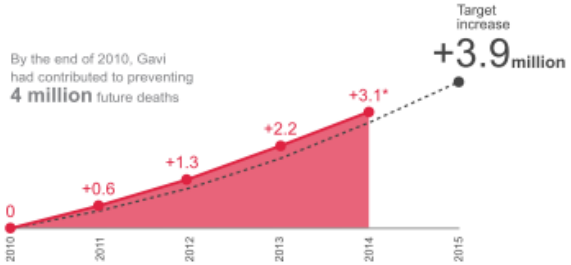
Mission

Saving children's lives and protecting people's health by increasing access to immunisation in poor countries.

Under-five mortality rate in Gavi-eligible countries (per 1,000 live births)

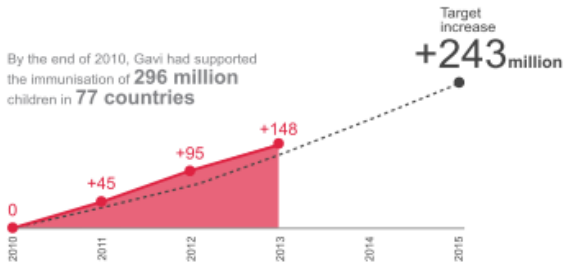


Number of future deaths averted (millions)



*Projection

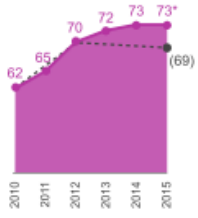
Number of children immunised (millions)



GOAL 1: Accelerate vaccines

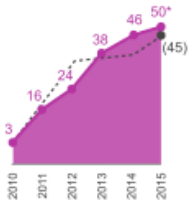
Accelerate the uptake and use of underused and new vaccines by strengthening country decision-making and introduction.

Pentavalent vaccine
Number of countries



*As of 10 April 2015

Pneumococcal vaccine
Number of countries



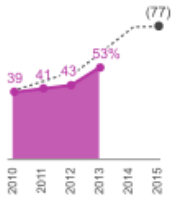
*As of 10 April 2015

Rotavirus vaccine
Number of countries

*As of 10 April 2015

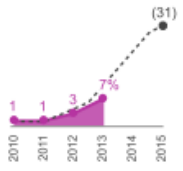
Country introductions of new and underused vaccines

Pentavalent vaccine, 3rd dose Coverage (%)



Pneumococcal vaccine, 3rd dose Coverage (%)

Rotavirus vaccine, 3rd dose Coverage (%)



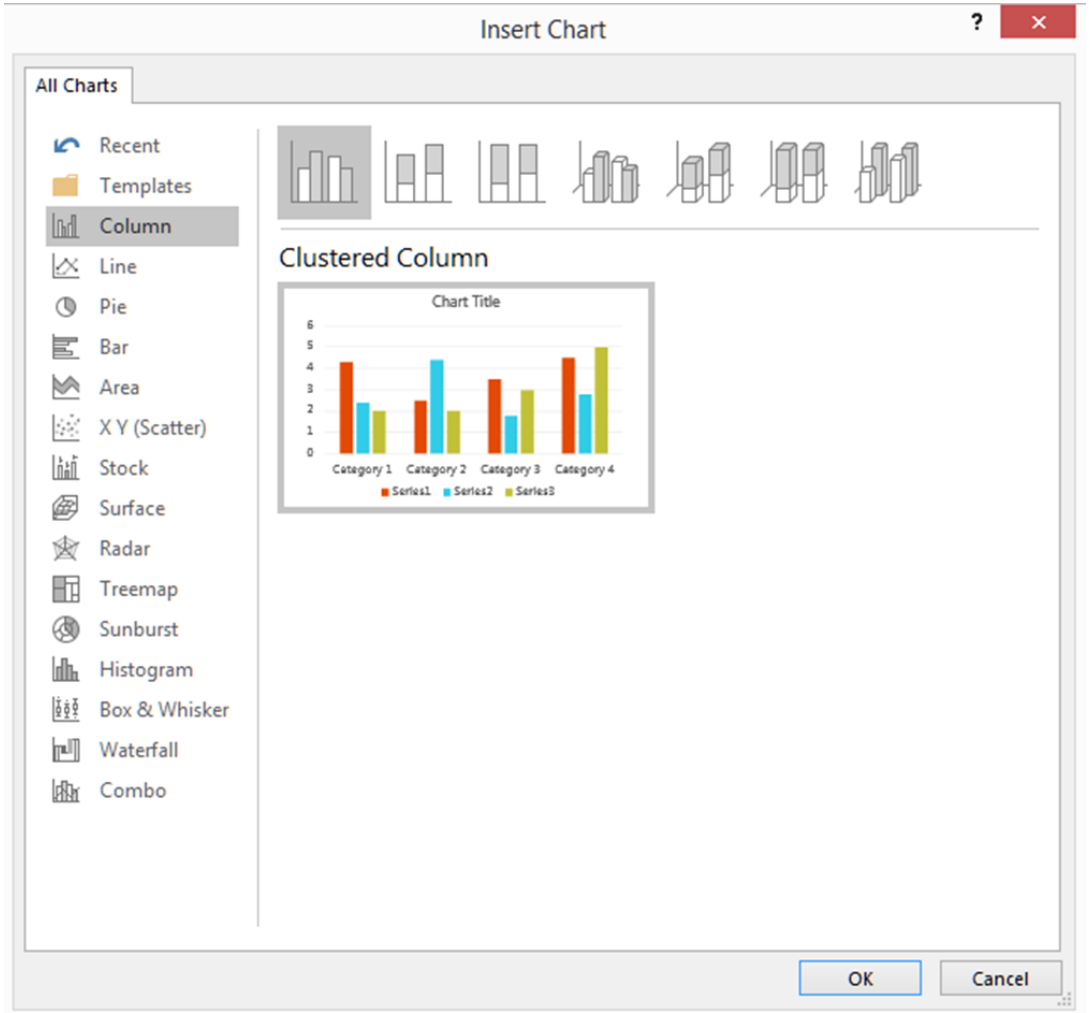
Coverage of new and underused vaccines

From Gavi Vaccine Alliance at http://www.gavi.org/results/goal-level-indicators/. Gavi has begun to use DHIS2 to track and report on indicators.

Use PowerPoint to create mockups of desired reports

Use PowerPoint or Excel to create prototypes of desired reports using dummy data. Then consult with key stakeholders and decision-makers. Is this what they want?

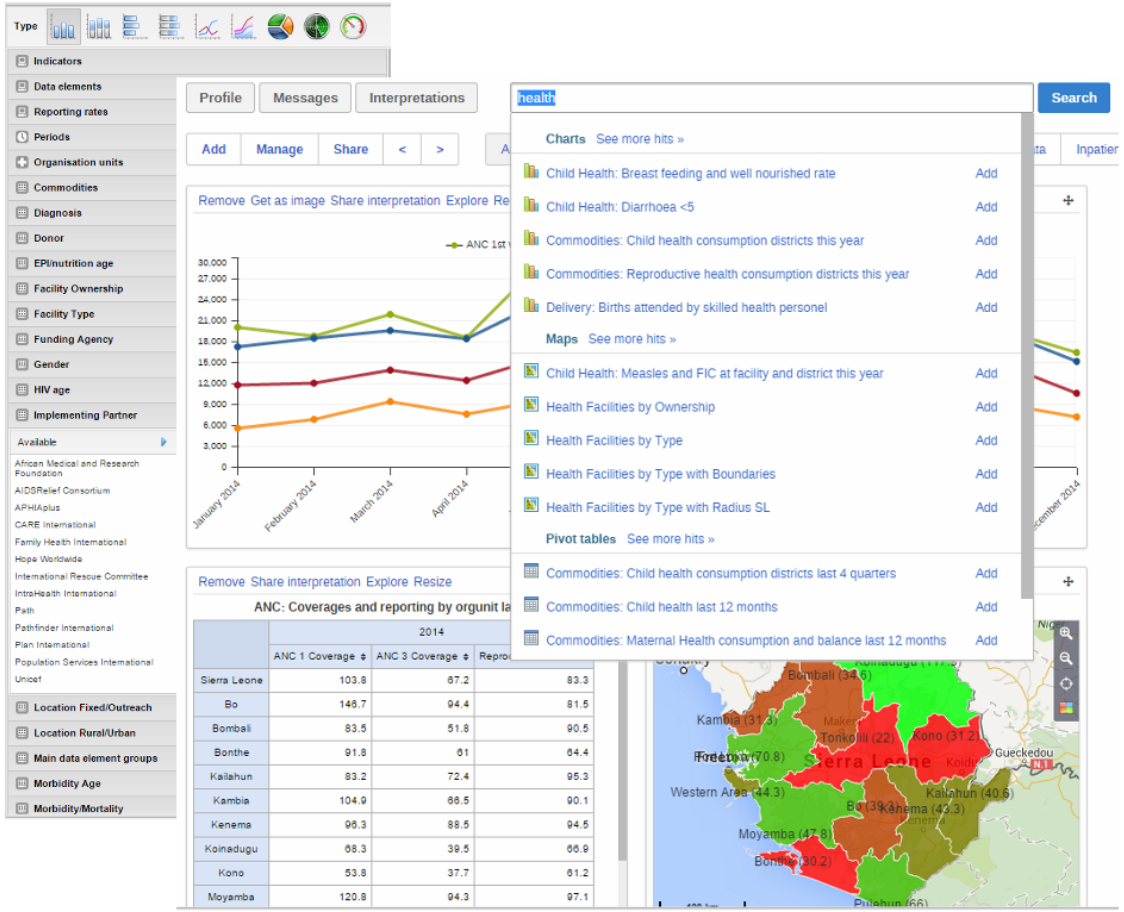
We will have a few basic reports that are part of the template, including participant satisfaction and number of people served.



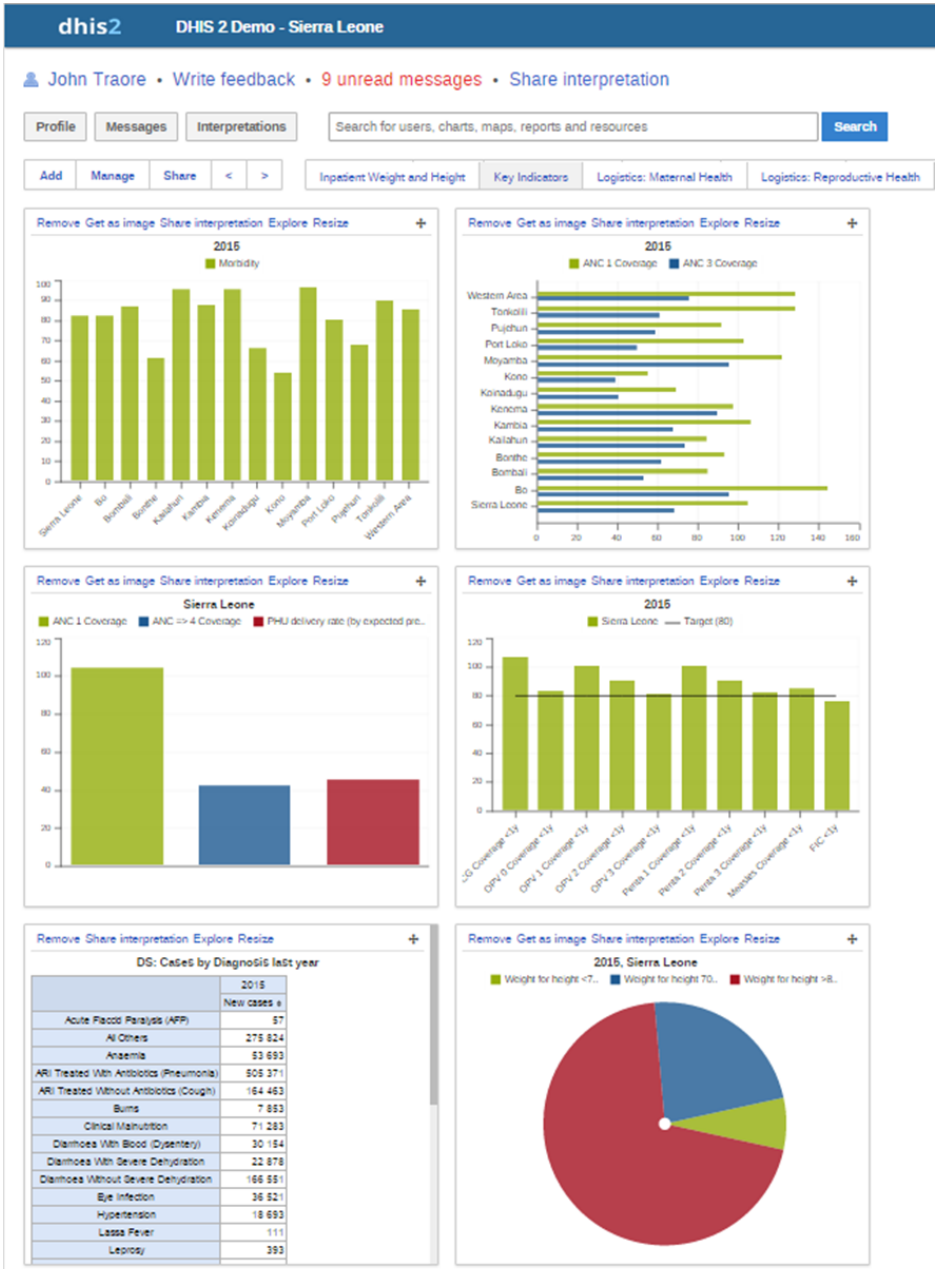
Phase 3. Set up a functioning system with DHIS2

DHIS2 reports information in various formats

Dashboards can be created for individual users and funders. They can be posted on the integrated web portal or shared privately.



Use DHIS2 to test mockups of dashboards



From www.dhis2.org

Defining logic model through group sets

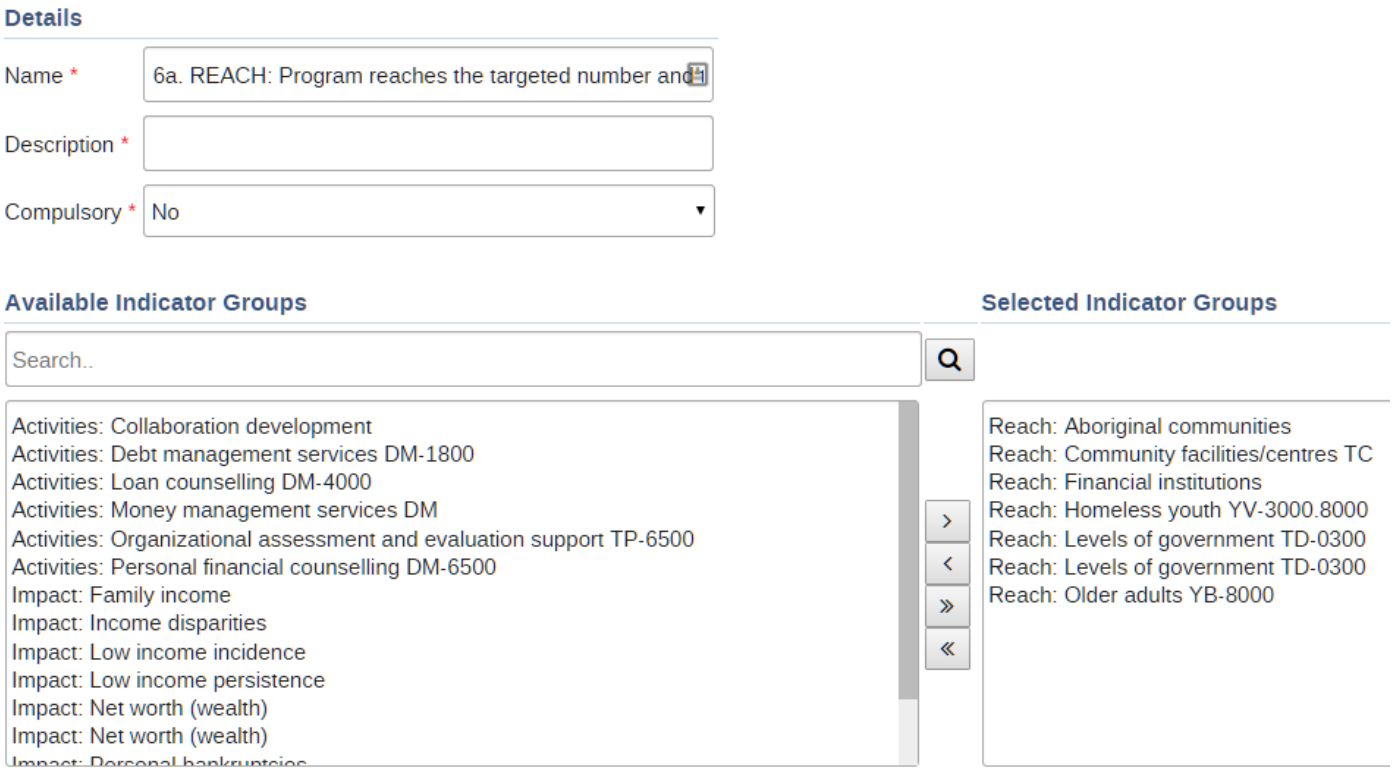
Each group set (see below) is linked to multiple indicator groups.

5a. EXPERIENCE: Participants are engaged with the program
5b. EXPERIENCE: Stakeholders are satisfied with the program
6a. REACH: Program reaches the targeted number and type of beneficiaries
6b. REACH: Program reaches the targeted number and type of organizations and service providers
7a. ACTIVITIES: Collaborating and sharing
7b. ACTIVITIES: Tailoring programs and applying plain language principles
7c: ACTIVITIES: Reaching and engaging Canadians
8a: MANAGEMENT: The targeted number and type of products and services are delivered
8b. MANAGEMENT: The programs are delivered correctly at an adequate level of quality
8c. MANAGEMENT: Resources are used efficiently to manage the program
8d. MANAGEMENT: Program design is informed by evidence of efficacy and cost effectiveness
8e. MANAGEMENT: Staff and volunteers are managed well

Assigning indicators to groups

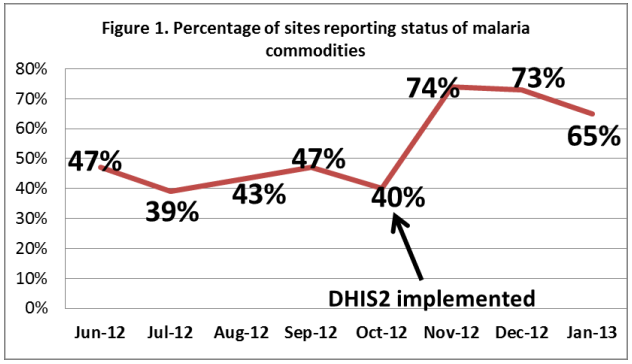
Group Sets (e.g., REACH) are linked to Indicator Groups.

Each Indicator Group can have unlimited numbers of Indicators.



DHIS2 use cases

Managing malaria in Kenya



Reporting rate for malaria commodities across all health facilities in Kenya, June 2012-January 2013.

To improve malaria reporting in Kenya, the Ministry of Health in 2010 approved the use of DHIS2 to report on malaria commodities at the sub-national level.*

With support from USAID, Kenya's Malaria Control Unit transitioned its reporting system to DHIS2 in October 2012. **Use of DHIS2 improved reporting rates from about 45 percent to 70 percent in the months after its implementation** (see figure to the left).

Kenya is now working with 13 county governments to promote reporting through DHIS2 for family planning, HIV, nutrition, and laboratory commodities.

The Health Information Systems unit of the Ministry of Health and staff from the HIV, TB, malaria, reproductive health and family programs participated in a conference on the impact of DHIS2, facilitated by USAID and Ministry staff.

Participants heard how an effective health information solution contributed to Kenya's standing with The Global Fund to Fight AIDS, Tuberculosis and Malaria going from a C to an A2 rating: Using DHIS2 made it possible and easy for the country to track the reporting and non-reporting health facilities. Through better tracking of commodities with DHIS2, donor confidence in the malaria program was restored and additional funding was secured.

Effective health information systems leads to better health systems

Effective health information solutions like DHIS2 can help improve accountability across the health system. Scale up of DHIS2 can further strengthen the management and use of health commodities and improve the use of data for decision making at all levels of the health system.

* This page is excerpted and paraphrased from https://www.msh.org/news-events/stories/managing-data-with-dhis2-improving-health-commodities-reporting-and-decision

Logical Outcomes

Use of technology in Ebola response in West Africa

DHIS2 is one of the key technology platforms used to manage Ebola and HIV/AIDS.

It has been nationally implemented in at least 13 African countries, and in the process of adoption in 50 countries worldwide.

KEY MESSAGES

1. The severity of the Ebola epidemic and limited information on new cases and geographic spread calls for the rapid deployment of information and communication technology (ICT) tools, including eHealth and mHealth, to **optimize the response**.

2. A number of technology tools have **already been used** in the response and others are in development. Open-source platforms such as DHIS2, Open Data Kit, Enketo, RapidPro, iHRIS, and the DCP form the technology suite known as mHero. In Liberia, this suite is emerging as a set of tools endorsed by many actors in the response and **builds on existing government ehealth systems**. Numerous other platforms are in use by nongovernmental organizations (NGOs) and other mhealth practitioners.

3. **Integration, harmonization, and accessibility of ICT infrastructure** by public, private, and civil society actors is critical to the response to the Ebola humanitarian crisis, as well as the long-term economic development and security of the region.

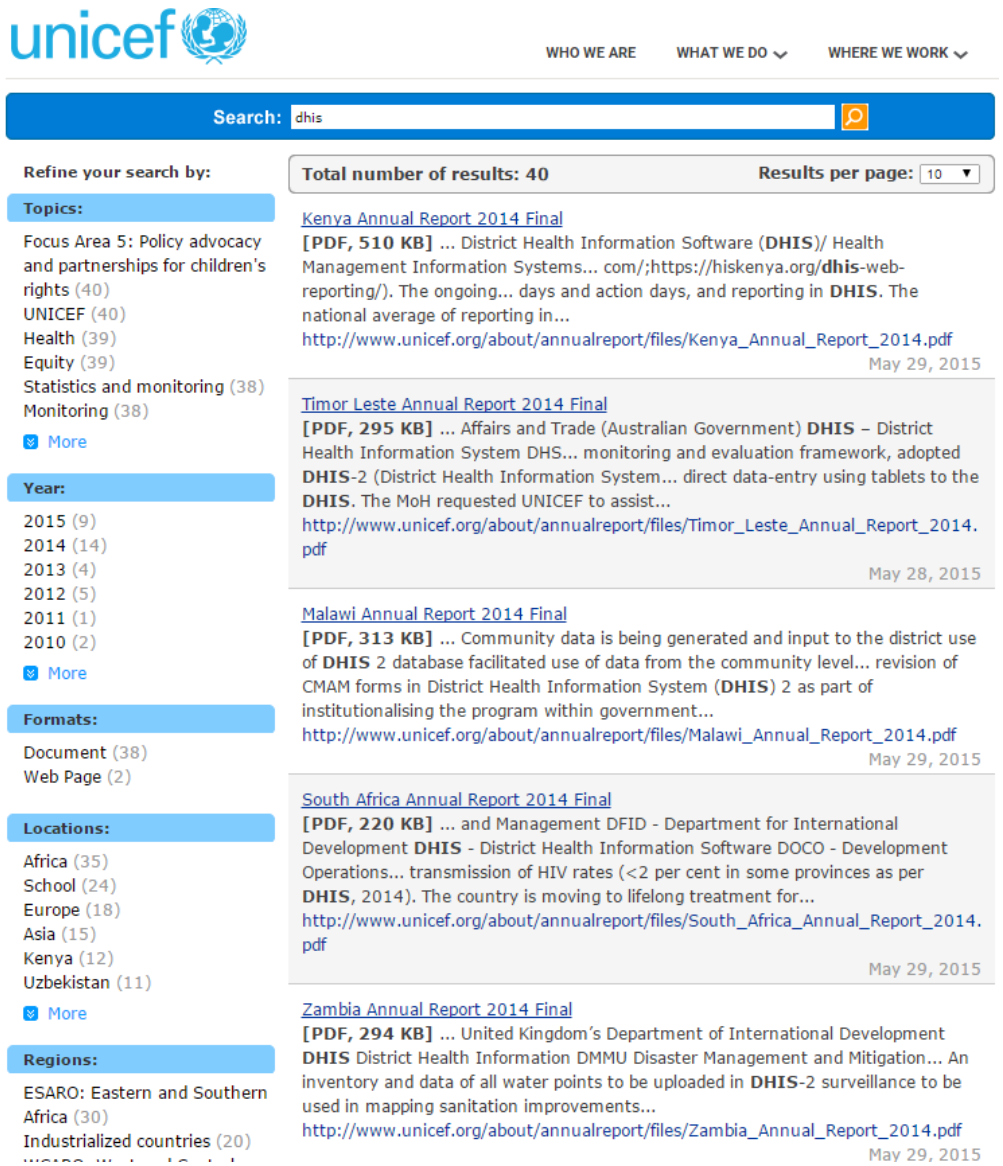
4. **Better coordination** is needed in the deployment of technologies to avoid duplication of efforts and data fragmentation. Coordinating the tech component of the response should be integrated in the overall National Ebola Outbreak Response Plan of the affected countries and in the preparedness plans of non-affected countries.

5. Whenever possible, governments and partners should seek to **use and endorse proven platforms** and tools before developing new ones to ensure interoperability. New tools are unproven and will lead to further lack of coordination and data fragmentation.

Excerpted from https://www.msh.org/resources/use-of-technology-in-the-ebola-response-in-west-africa

unicef

Many of Unicef's projects rely on DHIS2.

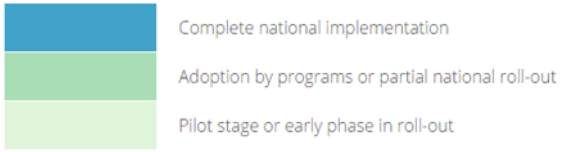


From http://www.unicef.org/search/search.php?q_en=dhis&go.x=0&go.y=0

National implementations of DHIS

DHIS2 is being used or in the process of adoption by over 50 countries so far. Here is a somewhat out-of-date list.

Key:



The University of Oslo's DHIS2 program trains doctoral students in health management. A search of Google Scholar of DHIS2 shows over 400 research articles on implementation and health system management.

From https://www.dhis2.org/deployments
Also see https://scholar.google.ca/scholar?q=dhis2&btnG=&hl=en&as_sdt=0%2C5

Afghanistan
Algeria
Bangladesh
Benin
Bhutan
Burkina Faso
Burundi
Cameroon
Colombia
Congo Brazzaville
Cote d'Ivoire
DRC
Ghana
Guinea Bissau
India (Bihar, Orissa, Maharashtra, Kerala, Punjab, Haryana, H Pradesh)
Kenya
Laos
Liberia
Malawi
Mexico
Mozambique
Myanmar
Namibia
Nepal
Niger
Nigeria
North Korea
Rwanda
Samoa
Senegal
Sierra Leone
Solomon Islands
South Africa
South Sudan
Sri Lanka
Sudan
Tajikistan
Tanzania
The Gambia
Timor Leste
Togo
Uganda
Vanuatu
Vietnam
Zambia
Zanzibar
Zimbabwe

The Global Fund

The Global Fund (www.theglobalfund.org) is an international partnership that provides funds to accelerate the end of AIDS, tuberculosis and malaria. It raises and invests nearly $4 billion US/year to support local programs.

It is a heavy user of data standards, and promotes the use of DHIS2 to track health status. In fact, it funds DHIS2 implementations as part of its 'Health Systems Strengthening' initiative, and most of its national partners use DHIS2 to collect and report on health data. In November 2014, Global Fund reported that:

"Strengthened country data systems are crucial to making robust plans and measuring and evaluating impact. Data needed for results reporting and impact assessments require country-based data systems and structures ⋯ Of the high impact countries, 17 out of 23 are using DHIS2 2 as a reporting platform, with funding from grants going to support rollout and training."*

The entire web site provides a model for good funding practices and resources. They use indicators that have been defined within DHIS2, including PEPFAR's, and show examples of how to build in workplan deliverables and milestones.

From http://www.theglobalfund.org/documents/fundingmodel/progressupdate/FundingModel_2014-12-Progress_Update_en/

Data linked to national data systems.

Dynamic and verified results instead of static results.

Click and zoom on public interfaces of national data systems

The Global Fund
To Fight AIDS, Tuberculosis and Malaria

Home | About | Partners | Grant Portfolio | Media Center | Library | Blog

Map | Search | Downloads | Data Site

Benin

Grant Portfolio | Choose location | Benin | List of Grants (11) | Choose grant

All | HIV/AIDS | Tuberculosis | Malaria

Key Results

PEOPLE CURRENTLY ON ART
26,000

NEW SMEAR-POSITIVE TB CASES DETECTED AND [illegible]ATED
14,600

NETS DISTRIBUTED (ITNS & LLINS)
3,300,000

Grants Overview

NUMBER OF ACTIVE GRANTS
7

Active Grants by Component

HIV/AIDS	TUBERCULOSIS	MALARIA
3	1	3

Financial Information

Income Level

Low income

Fund Portfolio Manager

Ronald, Tran Ba Huy

Contacts for Benin

Country Coordinating Mechanism

Principal Recipient

Local Fund Agent

Related Content and Documents

[1] Round 1

Proposal Form (R01 - HIV/AIDS) (PDF 558 KB)

Proposal Form (R01 - Malaria) (PDF 1 MB)

Proposal Form (R01 - Malaria) fr (PDF 775 KB)

About LogicalOutcomes

About us

LogicalOutcomes is a nonprofit organization based in Toronto, Canada.

We provide evaluation and consulting to support collective impact through shared measurement systems and stakeholder engagement.

We work in virtual teams, with a roster of dozens of analysts and specialists from around the world. And we're led by three Board members, described below (in alphabetical order).

***Gillian Kerr**, Ph.D., C.Psych.*

- ❑ Organizational psychologist with background in qualitative methods and information systems
- ❑ Formerly VP United Way of Greater Toronto, on UW America Taskforce on Measuring Program Outcomes, 1996
- ❑ Background in working with people with disabilities, ethnocultural services, immigration policy

***Martha McGuire**, M.S.W., CE*

- ❑ Founder of Cathexis Consulting, one of Canada's leading evaluation firms
- ❑ Former President of Canadian Evaluation Society, provincial and national bodies
- ❑ Has carried out over 130 evaluations
- ❑ Teaches evaluation at Ryerson University

***Neil Price**, M.A.*

- ❑ Leads stakeholder consultation projects
- ❑ Led multiple youth programs related to post-secondary education
- ❑ CivicAction DiverseCity Fellow and community advocate
- ❑ Teaches community development at George Brown College

The DHIS2 Team

LogicalOutcomes has an international network of analysts and contractors.

We work with Canadian and international analysts, software developers, writers and evaluators.

For DHIS2 implementations, we work with HISP India and HISP Uganda, two of the international hubs for DHIS2 development, as well as several independent experts.

We have relationships with two DHIS2 hosting services. Entuura Ventures, our main partner, is led by Steven Uggowitzer, an international leader in DHIS2 implementations, and provides a full DHIS2 service including level 2 and 3 technical support. Knowarth, a reliable and low-cost Indian hosting provider, uses US-based Amazon servers. Both providers include SSL encryption, monthly patching and testing, backups and 24 hour emergency support.

In addition, we have a long-term relationship with SolutionAnalysts, a technology firm that develops web applications, mobile apps and complex enterprise systems. They have designed, developed, built and maintained more than 350 solutions.

The DHIS2 Network

The University of Oslo, the NonProfit Organizations Knowledge Initiative (NPOKI), Metrics for Management, Population Services International (PSI), The Global Fund and many other organizations are building a community of practice to create shared measurement systems for nonprofits across the world.

LogicalOutcomes will help agencies tap into the network for advice and support as well as engaging in the community ourselves.

Project management and costing

Our project tools

We use free software tools to run our projects, customized to make us more efficient. They include:

OneNote Notebooks, designed as self-contained 'projects in a box'. OneNote is extraordinarily effective if it is set up properly.

Office365 groups to encourage collaboration and reduce reliance on emails.

Zotero for literature reviews.

DHIS2 to track deliverables, to produce monthly status reports, and to prototype evaluation systems.

nCrypted Cloud to protect confidential personal information on laptops and to share it securely with team members.

Project Management Processes

Project budgets are based on an estimate of effort for each phase. We bill only $10/hour over what we actually pay our consultants, with a $45/hour minimum. For fixed price contracts we price our projects to cover our costs with little left over for unexpected expenses.

With overheads so low, we need to control project scope carefully so that we don't go over budget. We use formal project management processes, working closely with our clients to keep on track. We use agile methodologies to deliver products in short modules (generally at 6 to 8 week intervals) to ensure that we are creating useful tools that meet the project's goals.

Projects have clearly defined roles and responsibilities for quality, cost, schedule and stakeholder relationships.

Fixed Price or Cost Plus Budgets

Clients can choose whether they prefer a fixed price contract or a 'cost plus' contract:

Fixed price: we make our best estimate for the hours that will be required for the project, and will not charge for additional time if we go over budget.

Cost plus: we will charge for the hours we work. Some clients like the flexibility to assign us to new or changing tasks as the project progresses, or train internal staff to replace our team members (things that cannot be budgeted ahead of time.)

In either case we work closely with the client to ensure that objectives are met within the resources that are available. In both cases the clients may terminate the contract with two weeks' notice for any reason.