

OpenCRVS First Technical Advisory Group
Dhaka, Bangladesh Tuesday 10th & Wednesday 11th July, 2018

On Tuesday 10th and Wednesday 11th July 2019, the first OpenCRVS Technical Advisory Group was held in the Amari Hotel in Dhaka, Bangladesh.

Participants included:

- Edward Duffus, OpenCRVS Project Sponsor / Plan International Head of Innovation
- Annina Wersun, Global OpenCRVS Project Manager
- Euan Millar, OpenCRVS Technical Architect
- Umesh Pandya, OpenCRVS Design Lead
- Mikkel Nielsen, OpenCRVS Senior Designer
- George Bevan, OpenCRVS Senior Designer
- Rezaul Islam, Deputy Secretary Cabinet Division, Deputy Project Manager CRVS Project, Bangladesh
- Md. Ashfaqu Amin Mukut, Deputy Secretary Cabinet Division, CRVS and Social Protection Branch, Bangladesh
- Professor Abul Kalam Azad, Director General, Health Services, Bangladesh
- Sophie Shugg, OpenCRVS Project Advisor
- Chris Seebregts, CEO of Jembi Health Systems
- Raj Mitra, Independent Consultant
- Martin Braatschi, Vital Strategies
- Dr. Shah Ali Akbar Ashrafi, D4H-CRVS Country Coordinator, Bangladesh
- Moyeen Uddin, D4H-CRVS Country Coordinator, Bangladesh
- Kendra Gregson, Regional Advisor Child Protection, UNICEF
- Lori Thorell, Senior Systems Officer, UNICEF
- Jamila Akhtar, National Child Protection Specialist, UNICEF
- Nicholas Oakeshott, Senior Identity Management Officer, UNHCR
- Daniel Cobos, Research fellow, Health Systems and Policies Research Group, Swiss Tropical and Public Health Institute
- Vibeke Nielsen, Head of Division, Division for Development Cooperation, Statistics Norway
- Sophie Shugg, OpenCRVS Technical Advisor, Plan International Australia
- Orla Murphy, Country Director, Plan International Bangladesh

The agenda for the 2 day workshop included:

Tuesday 10th July

- OpenCRVS: the story so far
- Introduction to the Social Venture Canvas: a tool to support in defining the product and its future.
- How do we make OpenCRVS sustainable? Discussion on potential business models for OpenCRVS.
- How do we harness existing knowledge? Identification of existing knowledge that can inform OpenCRVS core product development.
- Which form fields matter? Identification of legal and statistical form fields for birth and death registration, from a rights-based perspective.

Wednesday 11th July

- TAG ToR Review
- Overview of OpenCRVS technology & design decisions so far
- Introduction to OpenCRVS functional architecture
- What does OpenCRVS need to make it an effective implementation option? Identification of “enabling components”.
- How do you want to contribute? Identification of TAG contributions.
- Design session: civil registration data for good decision-making. Persona development workshop for civil registration data usage.
- What next?

OpenCRVS TAG Members

We are delighted to welcome an amazing group of individuals and organisations to the OpenCRVS TAG. Current members are listed below.

- Chris Seebregts, CEO Jembi Health Systems
- John Oswald, Futurice
- Lori Thorell, UNICEF
- Sean Blaschke, UNICEF
- Martin Braatschi, Vital Strategies
- Philip Setel, Vital Strategies
- Alvin Onaka, Registrar of Vital Statistics for the State of Hawaii
- Carla Abu-Zahr, Bloomberg Data for Health
- Don de Savigny, STPH
- Daniel Cobos, STPH
- Oliver Chinganya, UNECA
- Nicholas Oakeshott, UNHCR
- Alvin Marcello, Ae-Hin
- Dr. Boonchai, Ae-Hin
- Jonathan Marskell, ID4D World Bank
- Sam Mills, World Bank
- Stuart Campo, Harvard Humanitarian Initiative
- Vibeke Nielsen, Statistics Norway
- Irina Dincu, IDRC
- Mark Landry, WHO
- Azza Mohamed Badr, WHO
- Srdjan Mrkic, UNSD
- Hong Pum Chung, UNESCAP
- Gloria Mathenge, SPC
- Raj Mitra, Independent Consultant
- Orla Murphy, Plan International Bangladesh
- Rezaul Islam, Deputy Secretary Cabinet Division, Deputy Project Manager CRVS Project, Bangladesh
- Md. Ashfaqu Amin Mukut, Deputy Secretary Cabinet Division, CRVS and Social Protection Branch, Bangladesh
- Anir Chowdhury, CRVS Advisor, Government of Bangladesh

- Professor Abul Kalam Azad, Director General, Health Services, Bangladesh
- UNFPA TBC

TAG participants identified the need to differentiate between the invitation of individuals and organisations to the TAG. Invitations will be extended by the core OpenCRVS team to both organisations and individuals, recognizing that some individuals are not tied to an organization and/or are the most relevant person within the organization to participate. If the above named individual is not correct/the most appropriate person from your organization to be involved in the TAG at present, please do advise.

All participants acknowledged the great quality of TAG participants however encouraged the invitation of “non-traditional” CRVS actors including people and organisations that can inspire and challenge us to innovate OpenCRVS e.g. private sector, CRVS software providers, design and technology actors. The OpenCRVS team will explore opportunities and hope to present an updated TAG group during the next TAG meeting. Any suggestions of individuals and/or organisations are welcomed from TAG members, please contact annina.wersun@plan-international.org , Global OpenCRVS Project Manager.

The ToR for the TAG can be found attached to the accompanying email.

OpenCRVS: the story so far

Despite government’s obligations to register all vital events, levels of civil registration remain critically low in the developing world. Globally, around 1 in 4 children under 5 remain unregistered and over 100 countries do not have functioning CRVS systems.

Addressing this most basic barrier was the rationale behind the international community’s decision to set target 16.9 in the UN Sustainable Development Goals: “to provide legal identity for all, including birth registration” by the year 2030.

Modern digital technologies have the potential to transform CRVS processes based on their ability to extend registration coverage, standardise and streamline processes, and integrate data, all at a lower cost. Current CRVS systems are not delivering on this promise and do not reflect country needs. The advantages of technology are clear, that’s why developing countries are making large investments to digitise their CRVS systems. In December 2017, the Ministers responsible for Civil Registration in Africa also recognised the need for a common technology platform for CRVS, articulating this in Resolution 19 of the Nouakchott Declaration.

In response to these needs, Plan International is leading the development of OpenCRVS, a standards-based, open source software product that provides for the CRVS needs of all countries as a global good. It is a solution that responds to the needs of its users, both those that will be working with it on a daily basis and those people and institutions that stand to benefit from its functionality.

In 2017 a prototype of OpenCRVS was developed to demonstrate its potential. This prototype was presented at Regional CRVS meetings in both Bangkok, Thailand and Nouakchott, Mauritania and was well-received by governments, development partners and UN agencies alike. Based on the presentation made in Bangkok the Government of Bangladesh has shown continued interest in the product as an implementation option.

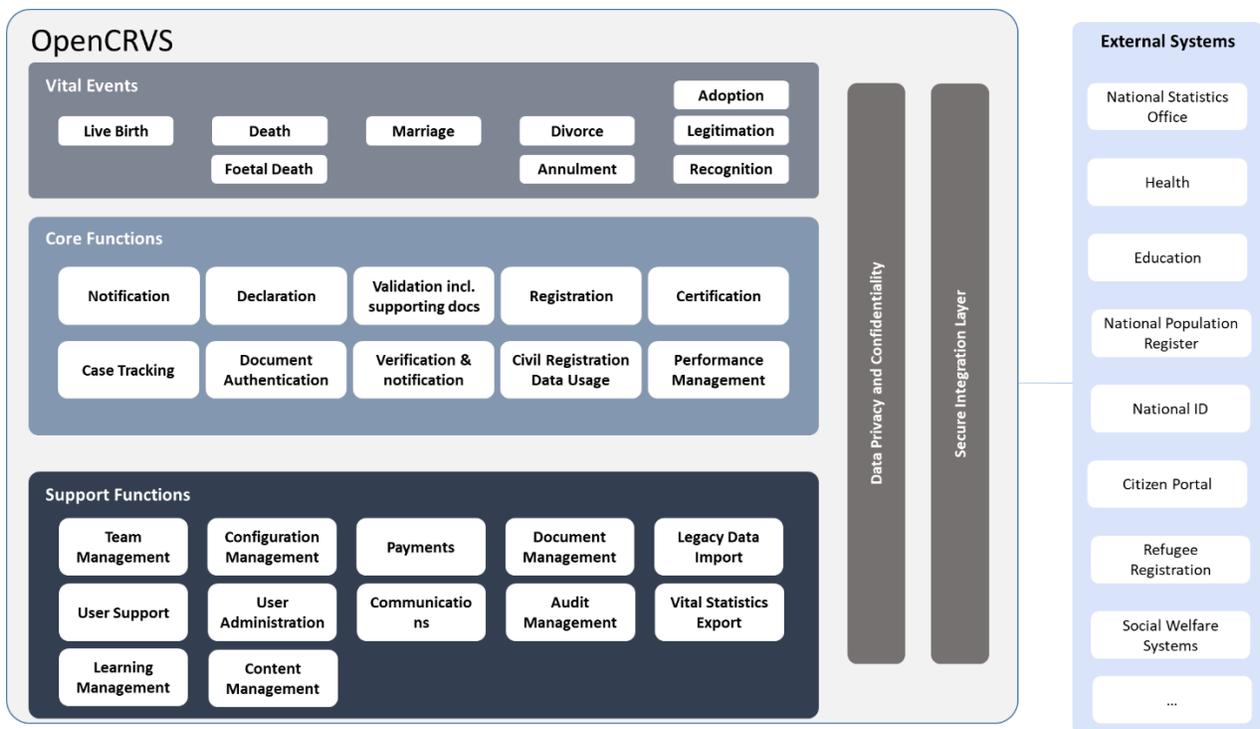
Moving forward, the focus will be on the Bangladesh reference implementation until March 2019. This includes:

- Human-centred design and prototyping activities taking place both in Bangladesh and remotely from July through end of October.
- Agile product development of functionality as defined in the functional architecture below.
- Monthly meetings of the “Implementation Sub-Committee for OpenCRVS” to update key stakeholders, discuss pertinent issues and validate design decisions for the Bangladesh context.
- End-user testing and a “Proof of Concept” demonstration of a production ready version of OpenCRVS by the end of March 2019.

After March 2019, the OpenCRVS team will explore further design and development of the “core product” based on the experience in Bangladesh and the analysis of existing global knowledge and artefacts.

Functional Architecture

The current view of the full OpenCRVS functional architecture can be seen below. As the product develops and further use cases and functionality is identified through user research, this will likely evolve.



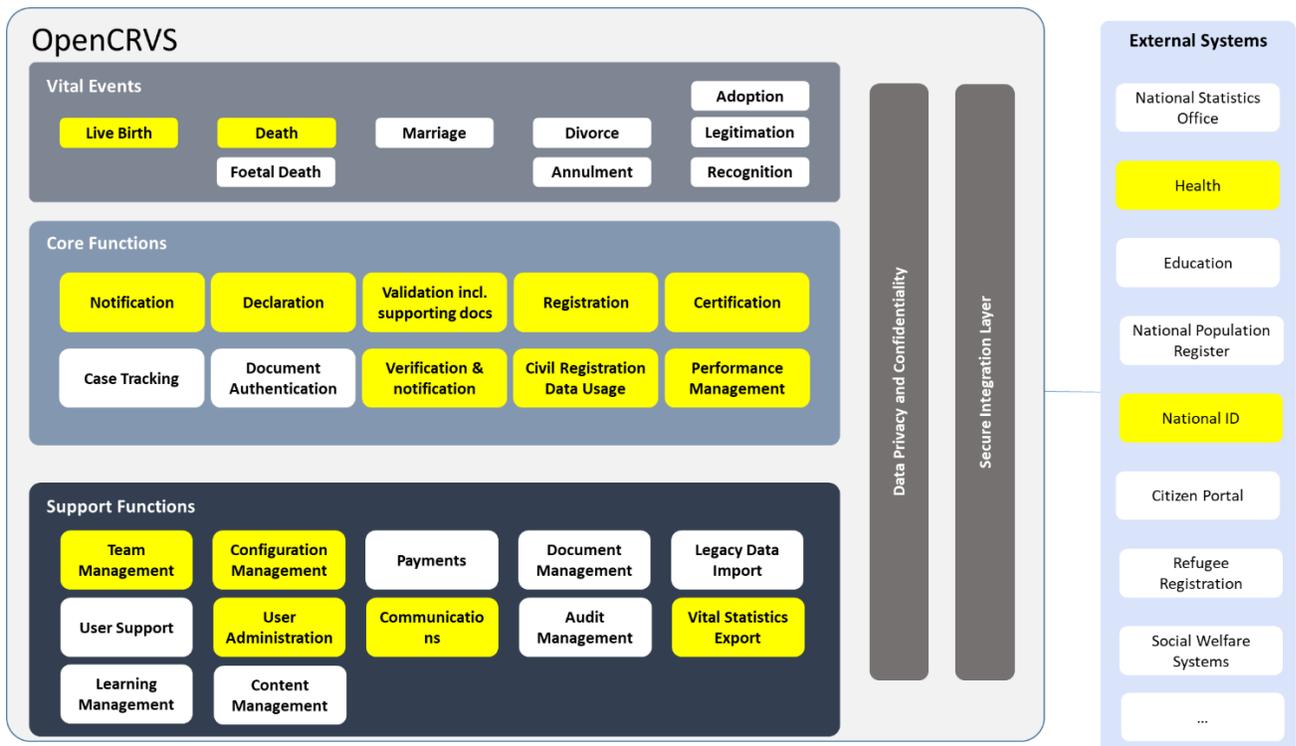
Scope of Work in Bangladesh

By March 2019, we aim to have a “production ready” version of OpenCRVS built and deployed in Bangladesh that can be tested with real users that is consistent with the roadmap for CRVS in Bangladesh.

This will include:

- Digitised declaration of births & deaths by community health workers.
- Automated validation & registration of births & deaths at Union Parishad.
- Integration with available eGov systems, e.g. NID, ISDP & DHIS2 (systems TBC)
- Civil registration dashboard for policy makers, showing disaggregated data views by gender, age and geographic location.
- Performance management dashboards for senior CRVS stakeholders.
- Rights-based applications of civil registration data e.g. age verification application (to end child marriage)

The functional scope is outlined below.



The scope defined here is subject to change based on research and ongoing dialogue and agreement with the Implementation Sub-Committee for OpenCRVS, formally established under the CRVS Secretariat in a meeting on Sunday 8th July, 2018.

OpenCRVS Social Venture Canvas

Participants in the OpenCRVS Technical Advisory Group meeting were introduced to the Social Venture Canvas, a tool for Social Entrepreneurs, NGOs and other organisations who want to create purpose-driven, impact lead, sustainable products, services and ventures. The OpenCRVS team have used this canvas to define the user, social and financial value of OpenCRVS and to begin to frame some of the critical questions and ideas around the OpenCRVS product.

The canvas has been updated with inputs from TAG participants and will continue to inform product development as we move forward. If participants are eager to see this working document, please contact the OpenCRVS project Manager.

How do we make OpenCRVS sustainable? Discussion on potential business models for OpenCRVS

OpenCRVS is a product that needs to be available on a long-term basis. As such, the sustainability discussion for it will be ongoing as the product is developed. In this session, a number of business models were discussed along with their pros and cons. Business models discussed are listed below:

- Donor subsidized: the product is subsidized by a donor on a long-term basis e.g. DHIS2.
- One off purchase: upfront cost for purchase of the product with all features as required.
- Software as a Service (SaaS): is a software licensing and delivery model in which software is licensed on a subscription basis and is centrally hosted (there is an implication of reduced country hardware requirements). The subscription could be based on an annual basis or per registration.
- Certification and Accreditation: costs associated with the assessment and subsequent provision of OpenCRVS certification and accreditation for the quality of system installed.
- Core and Customisations: i.e. free core product for standard CRVS features + value add customization options available to buy
- Advertising partnerships: commercial organisations pay for the one-off purchase of OpenCRVS to advertise via the OpenCRVS product
- Consultancy options (technical assistance): free core product + costs associated with implementation support, technical advice and capacity building via a consultancy model
- Shared ownership: a group of countries and/or region pays for collectively product add-ons and/or product support / technical assistance
- Private sector pay for access to big data. This data would not contain any operational data (i.e. that involves CR data) but instead would involve application analytics about the use of the actual system.

For TAG members who are interested in being part of targeted discussions on the OpenCRVS sustainability model moving forward, please contact annina.wersun@plan-international.org .

Harnessing existing knowledge: identification of existing sources to inform OpenCRVS development

As per the high-level workplan shown above, development of the full OpenCRVS core product configurable for all country contexts will not formally begin until after the reference implementation of OpenCRVS in Bangladesh. To inform this design process, it is critical to identify existing resources that can be used in this process. TAG participants identified a number of different existing and in-progress resources that will be critical to this process. These include:

- UNICEF: processes for civil registration in Africa and Asia Pacific Regions
- STPH process maps and analysis for 20 countries
- STPH performance management indicators and visualisations
- Vital Strategies legal & policy assessments

Relevant individuals will be contacted by the core OpenCRVS team if they are unable to find these resources.

If there are any resources identified by TAG members as critical at this stage, especially information on CRVS in Bangladesh, please contact annina.wersun@plan-international.org . We will also be engaging with the regional CRVS programmes in both Africa and Asia to understand what existing resources are available and how we can leverage these regional groups to gather inputs and requirements.

Which form fields matter? Identification of legal and statistical form fields for birth and death registration, from a rights-based perspective.

This session looked at the different form fields within a birth and death declaration. The purpose of the session was to highlight that data is collected for legal and statistical purposes, and some form fields are mandatory whilst others should remain optional.

The session started by highlighting the types of data that is collected for statistical purposes, in accordance with the UNSD 'Principles & Recommendations for a Vital Statistics System'. Examples of statistical form fields were discussed, included, weight at birth, education attainment of the mother, marital status of the deceased.

Form fields for legal purposes were then presented, highlighting national legislations and global conventions as the guidance frameworks to influence which legal form fields should be included in a declaration. The lack of a single globally recognised guiding document similar to the 'principles & recommendations' for legal data was identified and discussed.

Participants were then asked to discuss particular form fields that commonly causes risks within the registration process. Risks include those forms fields that commonly create a barrier or bottleneck to obtaining registration and certification, included:

- Name of a Child
- Location of the event
- Address of usual residence
- Marital Status

Fields that have the potential to causes exclusion and/or discrimination were also highlighted and discussed by participants, including:

- Fathers name
- Fathers National ID number
- Information that is printed on a certificate
- Supporting documentation, i.e. a marriage certificate requirement
- Ethnicity

At the end of the session it was agreed by participants that further work needs to be done in identifying best form field practices for the OpenCRVS core product. This includes identifying:

- Mandatory form fields
- Optional form fields
- Deciding what information would be printed on a certificate

It was agreed that a working group would be established within the TAG to advise the technical core group as they build out the form field functions within the OpenCRVS core product, and in turn supporting Bangladesh functionality. It was acknowledged that form fields are commonly bound by

national laws and policies. However, we want to ensure that OpenCRVS is rights-based and ensure the core product promotes best practices, but still maintains configurability in order to respond to individual country requirements. The OpenCRVS team will use Plan's position paper on birth registration as well as other rights-based guidelines to inform progress in this area.

If you are interested in being a part of the working group on rights-based form fields, please contact annina.wersun@plan-international.org and she will advise on how this process will proceed.

TAG ToR Review

Participants collectively reviewed and updated the ToR to reflect expectations of members and define a scope of work that facilitates a productive TAG. This can be seen in the attached document. TAG organisations will be expected to sign more formal commitments for specific roles e.g. founding partners, core partners, technical advisory group members. Drafts for review will be distributed shortly.

One specific question about the governance role of the TAG was raised, in terms of whether the TAG officially "signs-off" on product features. The current position is that TAG members are being invited to provide their personal advice in the form of reviews and feedback on specific aspects of OpenCRVS in TAG meetings. This advice does not constitute formal endorsement of their organization. Those who would like to be involved in specific functional areas during the design process should raise this with the core OpenCRVS team and appropriate working groups.

In order to facilitate ongoing feedback and discussion with TAG members, a Google Drive folder will be created and shared with TAG members. As well as sharing key outputs in this folder for review, there will be a Q&A/Suggestion document that allows TAG members to share thoughts and ideas and to facilitate discussion on an ongoing basis. The OpenCRVS core team will also explore the establishment of a community messaging tool to facilitate real-time discussions.

OpenCRVS Technical & Security Decisions

The OpenCRVS technical team, led by our Technical Architect, Euan Millar, have already made a number of exciting and robust technical and security decisions to ensure that OpenCRVS is built to the highest possible standards. Some of these initial decisions are explained below. In addition to the decisions made so far, we are exploring ways to independently certify OpenCRVS from a technical and security perspective, according to a set of international standards e.g. ISO.

If interested in discussing technical aspects of OpenCRVS, please contact annina.wersun@plan-international.org outlining your interest and possible contributions.

OpenCRVS key technical decisions



Microservices using Docker Swarm

Every feature independently deployable and scalable, responding to changing requirements.



Progressive Web Application

Stores and syncs registrations even when offline. No need for native app updates.



Full stack JavaScript (Typescript)

Standardised approach ensuring code cleanliness, and ease of resource allocation.



Interoperates with legacy systems using global health standards

FHIR (Fast Healthcare Interoperability Resources) Specification, - an HL7 standard for exchanging healthcare information.



GraphQL - 1 request for all data

Client - Server interactions via GraphQL, massively reduces the number of HTTP requests. Fast in remote areas.



API secret keys centrally managed

Data encrypted in transit and at rest using Docker Secrets API. Access is available only to trusted services.

Security Risk

Personal data is often accessible by users whose role doesn't require full access.

Personal profile is too large and too centralised



Solution

In FHIR, personal data is decoupled, making it easy to modularise based on user role and permissions

Data is additionally encrypted in Health - Our FHIR database. User roles and permissions are configurable in admin system.

Users share their passwords

Creates a security breach



Two Factor Authentication via SMS with One Time Password

Username and password is not enough to login, we include SMS code to a registered mobile phone.

Registrars, Developers and Admins leave employment with API keys & passwords

Creates a security breach



Automatically provisioned, rotating keys, tied to staff single sign-on

DockerSwarm Secrets API & OAuth OpenIDConnect

A Rights-Based Approach to OpenCRVS

One of the key principles of OpenCRVS is that the system is rights-based, embodying this in the way it is used, the information it captures, processes and uses, as well as the outcomes it contributes to. In order to support us in this effort, the OpenCRVS team will be working with the Harvard Humanitarian Initiative who have developed the Signal Code, a rights-based approach to Humanitarian Information Activities. The Code (Rights and Obligations) provide a critical foundation for diagnostic and assessment of digital risk, as well as formation of strategies for risk mitigation and responsible practice.

TAG participants highlighted the existence of other, complementary documents and guidelines which can support this process. These will be considered by the OpenCRVS team and included where appropriate.

For more on the Signal Code, check out <https://signalcode.org/>. If you are interested in being involved in discussions on rights-based considerations for OpenCRVS, please let annina.wersun@plan-international.org know how you would like to contribute.

Enabling Environment

While OpenCRVS has the potential to transform CRVS services for countries that adopt it, we recognise that technology alone cannot lead to universal registration, improved data quality and data use. TAG participants were asked to support in identifying complementary components that will provide an effective “enabling environment” for OpenCRVS. Key components included:

- Political commitments and budget allocation
- Business development / marketing / promotion
- Supportive legal and policy frameworks
- National level enterprise architecture and streamlined business processes for CRVS
- Demand creation / behavioural change mechanisms
- Effective change management approaches
- In-country human capacity
- National technical infrastructure

Participants were asked to identify any areas where they would like to actively contribute to these complementary assets. For those who are already working in these areas and/or would like to support these activities either in Bangladesh or as global goods, please contact annina.wersun@plan-international.org to discuss how these pieces of work can complement one another.