

# Smart ICT Investment for CRVS

## *A Global Business Case*

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**Who is this document for?** The donor community investing in Civil Registration and Vital Statistics strengthening

**What is the purpose of this document?** To propose a smarter way of building sustainable national capacity and protecting investments for digitised CRVS systems, taking into consideration the immediate risks of poorly planned and mismanaged ICT investments.

**What is the expected outcome of this document?** For donors to formally request Plan, WHO and UNICEF to develop a costed work plan for the implementation of this proposal, including:

- Common CRVS digitisation guidelines
- Open source platform for eCRVS
- Criteria for smart ICT investments in CRVS
- Reference eCRVS implementations
- eCRVS knowledge centre and reference group
- eCRVS training curriculum

### Background

In light of the increasing focus and commitment towards strengthening Civil Registration and Vital Statistics (CRVS) systems, technical experts from Plan International, UNICEF and WHO came together at the Asia-Pacific CRVS Ministerial Conference, 24-28 Nov 2014, to conceive a global business case for smart information and communications technology (ICT) investments in CRVS, recognizing that:

- ICT has the potential to provide transformative improvements in CRVS systems based on its ability, among others, to ensure universal coverage (meaning no one is left behind), to standardise and streamline registration processes, to ensure system interoperability and provide secure storage;
- ICT will constitute a substantial cost and a significant proportion of CRVS investments (e.g. 30% of the costs proposed for Bangladesh CRVS system strengthening are directly related to ICT);
- There is a substantial need and strong demand from developing countries for unbiased, high quality technical assistance on effective planning, implementation and on-going use of ICT for CRVS; and
- Current sources of information on CRVS digitisation<sup>1</sup> are not meeting country needs and due to technological advances in recent years, are now critically out-of-date.

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<sup>1</sup> United Nations (1998): UN Handbook on Civil Registration and Vital Statistics Systems – Computerization

## Key Issues

There is a huge potential for using ICT to strengthen CRVS systems, making them more efficient and more effective. However, the current capacity to implement well designed, scalable and sustainable systems remains weak, resulting in notable risks. Potential scenarios include:

- ICT investments will be wasted due to failed projects or large budget / schedule overruns (failure rates of eGovernment projects in developing countries are very high<sup>ii</sup>);
- The full potential of ICT will not be leveraged, resulting in CRVS systems that are not fully scalable, sustainable, flexible and interoperable;
- ICT solutions will not provide the necessary data protection, security and confidentiality to safeguard personal data hence may fail to deliver on rights based objectives (e.g. violation of privacy, identity theft, persecution and exploitation may all ensue);
- Over-reliance on the skills of software vendors, leading to cost-escalation of long term contracts due to proprietary software and standards;
- System development will be iterative, reacting over time to lessons learned rather than being well planned and conceived from the outset and building towards a long-term CRVS vision. The result will be over complex application architectures (as seen in the Philippines<sup>iii</sup>) which are difficult and costly to maintain; and
- Insufficient institutional readiness and workforce capacity that constrain adequate implementation, management, and cost-effective scale-up of ICT investments.

CRVS systems are prone to increased delivery risks due to their inter-disciplinary nature and the difficulty of programme governance across a number of ministries and functions (e.g. civil registration, health, statistics, internal security, justice, local government). In addition, without the necessary attention, the system landscape can become highly complex due to the typical characteristics of CRVS:

- High number of life events and processes to be handled (e.g. live birth, death, foetal death, marriage, divorce, annulment, separation, adoption, legitimation, recognition);
- Existence of legacy records (often paper-based) which need to be migrated to new systems;
- Multiple sources of data (e.g. registration offices, health facilities, judiciary);
- Primary source of personal identity information for other government systems (e.g. National ID, voter registration, passport issuance).

The areas of risk and CRVS characteristics highlighted above all present serious warning signs for ICT investments, as stated by Gartner<sup>iv</sup>:

Reasons why Government tech projects fail
<b>Business process complexity</b> - projects are too big, too complex, too ambitious
<b>Governance</b> – lack of accountability and steering committee expertise
<b>Project ownership</b> – inappropriate roles for department heads and IT directors

## Learning from eHealth

CRVS does not need to start from scratch when it comes to the effective use of ICT. Major investments in ICT in the field of global health such as PEPFAR, the Global Fund, GAVI and initiatives by the Gates Foundation, USAID, NORAD and GIZ, among others, have resulted in a wealth of knowledge and lessons learned for the effective implementation of ICT, such as the Principles for Digital Development<sup>v</sup>.

Over the past decade, the digital health community has demonstrated through pilots that ICT can improve health services delivery in the developing world<sup>vi</sup>. It has been proposed that digital health

interventions will impact health outcomes significantly only when routinely used, or institutionalized, as a common practice. Achieving institutionalization requires the right leadership, solution, approach, and capacity. Now the digital health community is on a journey to demonstrating health impact.

By taking inspiration from the guidance<sup>vii</sup> and the standards<sup>viii</sup> used in eHealth, digital or electronic CRVS (eCRVS) interventions can also deliver significant impact for children, citizens and governments in the short term.

Principles for Digital Development	
1.	Design with the User
2.	Understand the Existing Ecosystem
3.	Design for Scale
4.	Build for Sustainability
5.	Be Data Driven
6.	Use Open Standards, Open Data, Open Source, and Open Innovation
7.	Reuse and Improve
8.	Address Privacy & Security
9.	Be Collaborative

### Proposal

Drawing from the lessons of eHealth and industry best practice, the section below proposes 5 key initiatives, to mitigate the risks and capitalize on opportunities inherent to eCRVS. Together, these initiatives form the basis of an eCRVS capacity building roadmap, which will help move countries from limited capacity to more independent and effective implementation of eCRVS:

1. **Common CRVS digitisation guidelines:** Create guidelines and reusable design templates to simplify the implementation of ICT for CRVS, drawing on the UNSD principles and recommendations<sup>ix</sup>, enterprise architecture<sup>2</sup> and existing international standards. Note that the African Programme for the Accelerated Improvement of CRVS (APAI-CRVS) has already commenced work on the African guidelines<sup>x</sup> and these will form a basis for the common guidelines.

CRVS digitisation guidelines content	Description
CRVS technical analysis methodology <sup>3</sup>	Step by step guide of how to identify which digital solutions are most appropriate for the country context (based on an analysis of existing data, processes, actors, systems and organisations).
CRVS architectures	Reference architectures showing the typical functions of a CRVS system.
Generic CRVS system requirements	Exhaustive list of the detailed data, functional and technical requirements of a CRVS system, providing guidance on components based on country context (e.g. mobile notification in areas of low population density).
Planning templates	Sample plans showing the phases and typical activities to be conducted when implementing ICT for CRVS.

<sup>2</sup> Enterprise Architecture is a method of defining cost-effective IT solutions that meet the true needs of the organisation

<sup>3</sup> CRVS Technical Analysis methodology is to compliment the CRVS Comprehensive Assessment (University of Queensland / WHO)

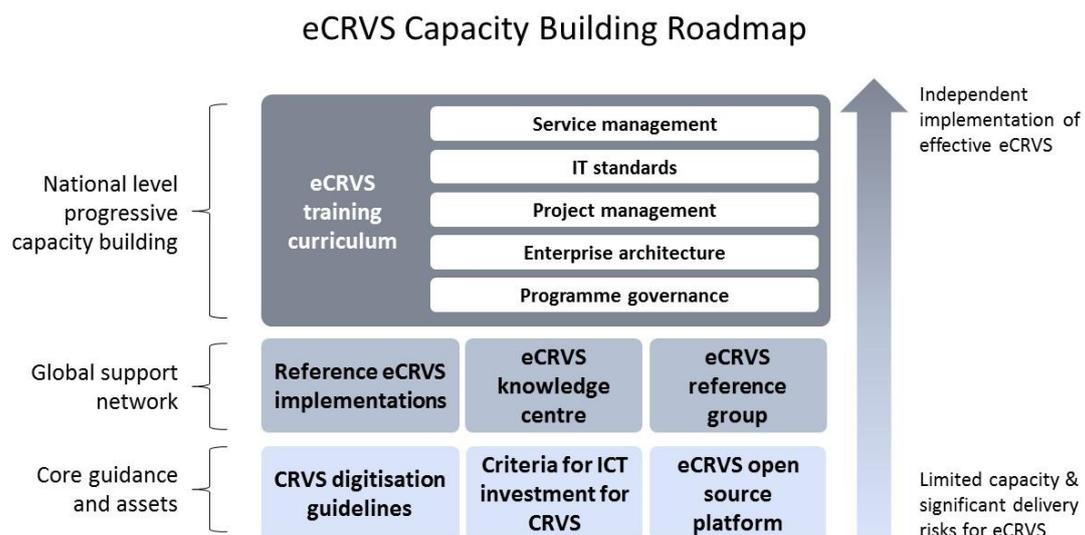
Models for total cost of ownership	Models that will facilitate the calculation of short and long term costs of ICT systems for CRVS, including software, hardware, training, running costs, maintenance etc.
Model policy and laws to support digitised CRVS	Sample policies and laws to facilitate legal reforms for rights based, digitised CRVS, including a focus on data protection, privacy and confidentiality.

2. **Criteria for smart ICT investment in CRVS:** Define mandatory deliverables and criteria for smart investment in ICT, based on outputs of the CRVS Digitisation Guidelines. These deliverables can be reviewed and assessed before ICT investments for CRVS are made.

Mandatory deliverables for ICT investment for CRVS	Description
Programme governance	Governance framework with a clear authority structure showing who is involved, responsible and accountable for decision-making.
Roadmap for long term CRVS vision	A description of how projects are planned over time so that they realise a long-term vision for CRVS in country.
Business processes diagrams	Details of the current and reengineered process flows showing efficiencies gained through effective use of ICT.
System architectures	Application, data and technical architectures for the proposed solution, complementing each other to enable effective CRVS.
System requirements	Detailed list of the functional and technical requirements of the proposed CRVS system.
Implementation plan	A plan showing how the CRVS system will be developed, tested, deployed, improved and evaluated. This plan will include all programme components required to compliment the technology such as advocacy, training, awareness-raising and infrastructure.
Financial sustainability model	This model will show the total costs of the CRVS system over time, along with potential revenue streams, financial commitments and long term sustainability.

3. **eCRVS open source platform:** Design and assemble an eCRVS platform that supports the generic processes and functions of CRVS. This platform will be made freely available to countries along with implementation documentation that compliments the CRVS digitisation guidelines. The distribution terms of the eCRVS open source platform, such as the right to modify and redistribute modifications are central to open source principles<sup>xi</sup> and these will promote a prosperous CRVS developer community.

4. **Reference eCRVS implementations:** Demonstrate the effectiveness of the guidelines and reusable design templates through best practice reference implementations in two countries<sup>4</sup> (one in Africa and one in Asia) and corresponding South-South learning and cooperation. Reference eCRVS implementations will be led by governments with coordinated technical assistance provided by Plan, UNICEF and WHO through the eCRVS reference group and the regional working groups on CRVS.
5. **eCRVS knowledge centre and reference group:** Create an online knowledge centre and dedicated reference group to support countries in the implementation of eCRVS. This global group will provide consistent and standardised technical assistance across development agencies and work in close collaboration with the regional working groups on CRVS<sup>5</sup> and peer networks in eHealth<sup>6</sup>. This group will also leverage expertise from the private sector and governments in the developed world. From this group an ICT investment panel will be formed to review funding applications against the criteria for smart ICT investment in CRVS.
6. **eCRVS training curriculum:** Define and rollout a standardised training curriculum that progressively builds skills, knowledge and certification levels in programme governance, enterprise architecture, project management, IT standards and service management at the national level.



<sup>4</sup> Countries to be selected based on current readiness as per the criteria for ICT investment for CRVS and commitment to a South-South learning approach

<sup>5</sup> African programme for the Accelerated Improvement in CRVS (APAI-CRVS), Regional Steering Group for CRVS in Asia and the Pacific

<sup>6</sup> Asian eHealth Information Network (AeHIN), African Network for Digital Health (ANDH)

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- <sup>i</sup> WHO (2014): Draft Investment Plan prepared for the Addis Ababa CRVS Meeting 28-29 April 2014
- <sup>ii</sup> United Nations (2003): World Public Sector Report 2003: e-Government at the Crossroads
- <sup>iii</sup> Philippines application architecture for CRVS, as presented at the UNICEF/IdB Technical Consultation on the use of ICT for Birth Registration, Bern, Dec 2014
- <sup>iv</sup> Gartner (2014): Three Reasons Government Tech Projects Fail, <http://www.gartner.com/newsroom/id/2790817>
- <sup>v</sup> Principles for Digital Development – Translating the Greentree Consensus into practical action (2014), <http://ict4dprinciples.org/>
- <sup>vi</sup> Path (2014): The Journey to Scale: Moving Together Past Digital Health Pilots
- <sup>vii</sup> Asia eHealth Information Network (AeHIN): National eHealth Capacity Roadmap (<http://www.aehin.org/Resources/eHealth.aspx>); UHC / ICT Conference, Manila 2014: ICTen ([https://prezi.com/chhy0exok\\_ey/icten/](https://prezi.com/chhy0exok_ey/icten/)); National eHealth Strategy Toolkit (ITU/WHO), ([http://www.itu.int/pub/D-STR-E\\_HEALTH.05-2012](http://www.itu.int/pub/D-STR-E_HEALTH.05-2012))
- <sup>viii</sup> The Open Group Architecture Framework (TOGAF), (<http://www.opengroup.org/togaf/>); Control Objectives for Information and Related Technology (COBIT), (<http://www.isaca.org/COBIT/pages/default.aspx>); Health Information Exchange (HIE); Integrating the Healthcare Enterprise (IHE), <http://www.ihe.net/>
- <sup>ix</sup> United Nations Statistics Division (2013): Principles and Recommendations for a Vital Statistics System Revision 3
- <sup>x</sup> Plan (2013): Guidelines for CRVS Digitisation (Concept Note)
- <sup>xi</sup> The Open Source Initiative: Open Source Definition (<http://opensource.org/docs/osd>)