

Civil Registration and Vital Statistics Digitisation Guidebook Version 0.10

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Home

The Civil Registration and Vital Statistics Digitisation Guidebook (CRVS-DGB) is an online tool that provides step-by-step guidance for planning, analysing, designing and implementing digitized systems and automated processes for CRVS.

Information and Communications Technology, or ICT, has the potential to transform CRVS systems. It has the ability to extend registration coverage, standardise and streamline civil registration and vital statistics processes, integrate data from multiple systems and securely store data at scale - all in a cost-effective way. If properly employed, ICTs can make a significant contribution towards achieving universal registration of vital events, providing legal documentation of civil registration as necessary to claim identity, civil status and ensuing rights, and producing accurate, complete and timely vital statistics.

This guidebook was created in response to the need expressed by countries in Africa for effective, scalable and sustainable CRVS systems and to maximise the impact of ICT investments. It was developed in collaboration with country experts across Africa and remains a living resource that will continue to evolve and expand over time.

The CRVS Digitisation Guidebook is an integral part of the CRVS strengthening support offered to African countries by the African Programme for the Accelerated Improvement of CRVS, or APAI-CRVS, and should be used in conjunction with the development of a national CRVS strategic plan and work programme.

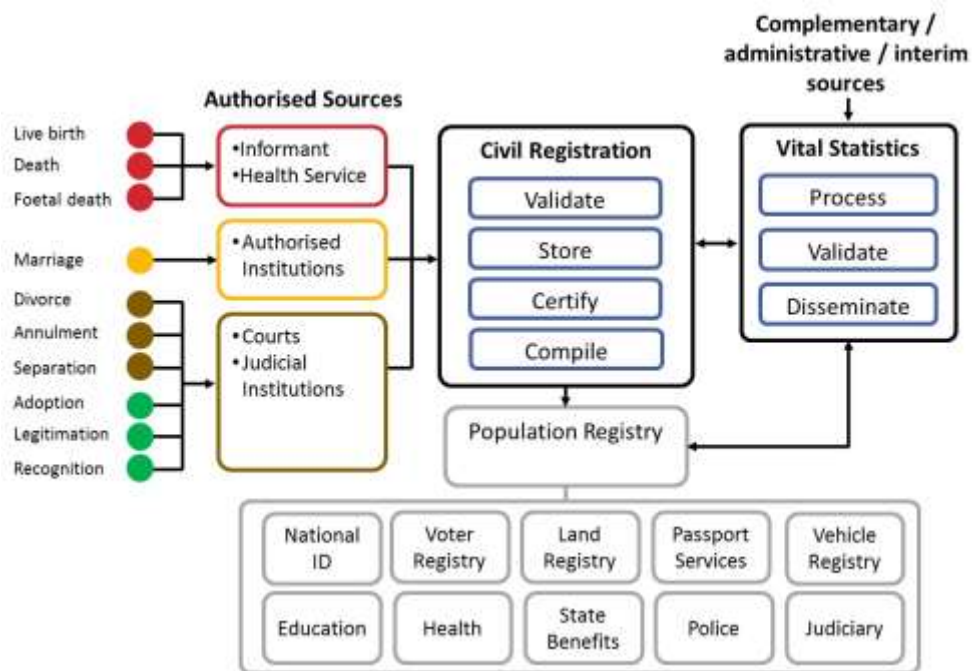
WHO IS THIS GUIDEBOOK FOR?

The Guidebook provides a common methodology aimed at:

- Government authorities responsible for the delivery of CRVS services
- Project managers responsible for CRVS digitization including government ICT departments
- Organizations providing technical assistance for CRVS strengthening from the United Nations, NGOs and the private sector
- Donors supporting ICT related CRVS initiatives (as a framework for monitoring projects to safeguard financial investments)

This guidebook takes into account common points of failure for eGov and ICT projects and responds with content that is underpinned by the following guiding principles:

1. **ICT as an enabler of CRVS:** ICT solutions must be seen as enablers and directly support the business functions of CRVS. Designing ICTs with business needs in mind is at the core of enterprise architecture methodologies and this Guidebook takes inspiration from such approaches, presenting them in a simplified and easy-to-use format. The CRVS business domain is well defined and is used as a common point of reference for CRVS systems throughout the Guidebook. See the Infographic, adapted from the “Principles and Recommendations for a Vital Statistics System”, UNSD, 2014). For effective enablement of CRVS, ICT solutions and technology choices must be appropriate for the country context and based on a thorough analysis of existing systems and infrastructure, eGov policies, CRVS processes, human capacity and operational procedures.



CRVS Business Domain

2. **Smart implementation planning:** CRVS systems must be implemented and used in a manner which takes into account the realities of existing CRVS capacity. Where there is a significant gap between current CRVS capabilities and the desired future state, it will be necessary to create an implementation roadmap, such that the scope and timing of change is realistic and manageable. From a technology perspective this means that initial software releases should focus on less complex functionality to build confidence in the systems and that sufficient allowance is made for feedback on system requirements through prototyping, thorough field testing and piloting. In terms of the roles and responsibilities of system users, there will likely be initial resistance to change, so change management activities must be defined that encourage system use and progressively build acceptance of the system through positive communication of system benefits for users and beneficiaries.
3. **Strong project governance:** Clear and appropriate governance roles must be established for the CRVS authorities and IT departments involved in the CRVS digitisation project. Common project management documents will also reinforce these roles and a common understanding of the project objectives. Project roles and objectives must also align with those of the broader CRVS strengthening programme, noting that accountability mechanisms are paramount due to the inter-disciplinary nature of CRVS and the large number of stakeholders across different ministries.

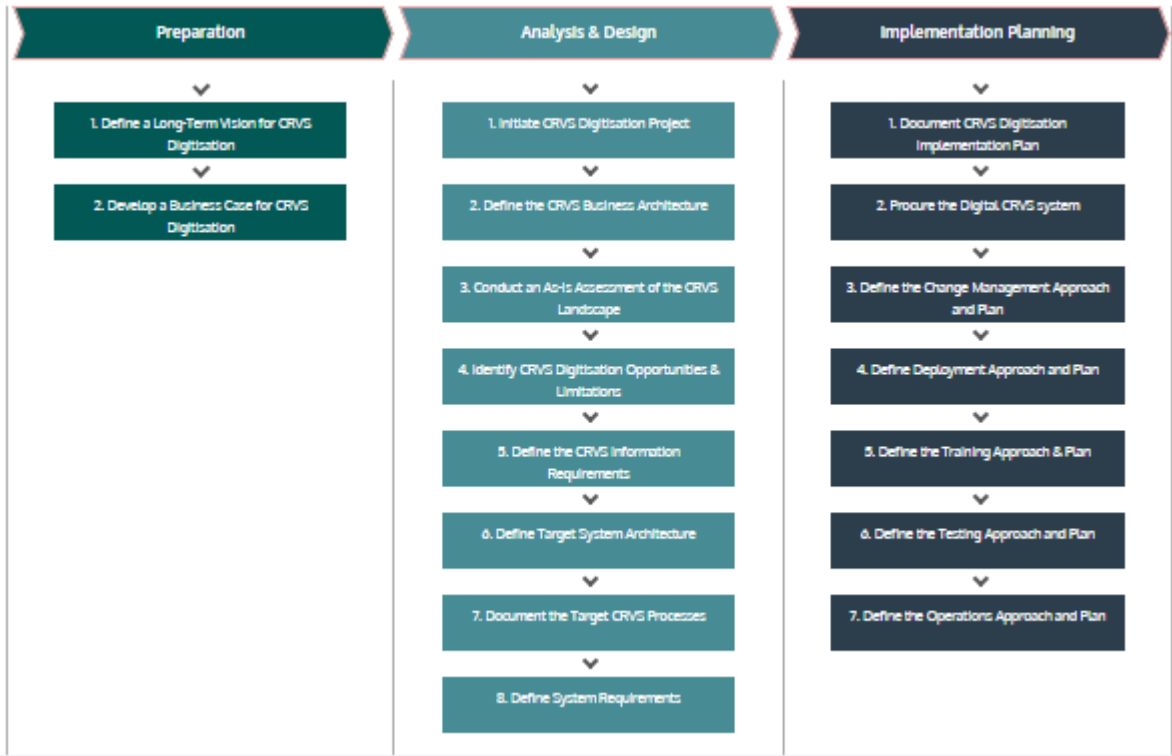
The CRVS Digitisation Guidebook should be used alongside other reference documents, which provide complimentary and supporting guidance:

- United Nations Statistics Division, 2014. Principles and Recommendations for a Vital Statistics System, Revision 3. New York. [\[PDF\]](#)
- United Nations Statistics Division, 1998. Handbook on civil registration and vital statistics systems. Computerization. [\[PDF\]](#)
- United Nations Statistics Division, 1998. Handbook on civil registration and vital statistics systems. Management, operation and maintenance. [\[PDF\]](#)
- IADB / UNICEF, 2015. Toward Universal Birth Registration. A Systemic Approach to the Application of ICT. [\[PDF\]](#)
- World Bank, 2014. Digital Identity Toolkit. A Guide for Stakeholders in Africa. [\[PDF\]](#)
- IDPM, 2008. Success and Failure in eGov Projects. [\[Web\]](#)

Methodology

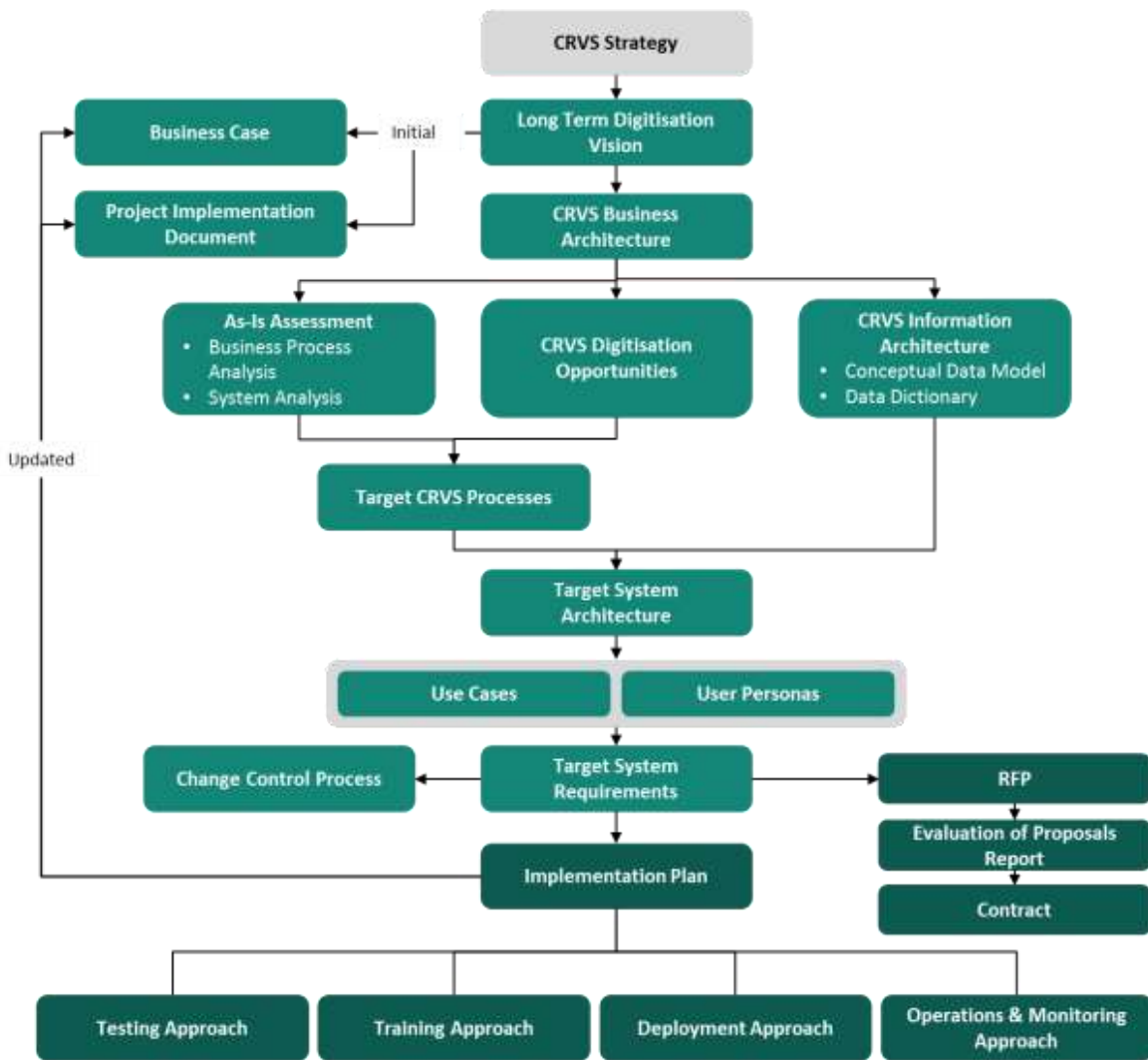
The Guidebook is organised as a set of activities to be completed in sequential order that will lead to ICT solutions that are designed to fit the CRVS business need and can be implemented at scale in a predictable and sustainable manner. The activity descriptions are supplemented with templates and examples to support users in creating activity outputs and showcase best practice, accelerating implementation of digitised CRVS and maximising standardisation, where possible.

The schema below represents the CRVS digitization project lifecycle. Select the phase or activity for a detailed description and relevant resources.



Phases and Activities of the CRVS Digitisation Project Lifecycle

The diagram below shows how the main outputs from this process are linked together.



Flowchart of CRVS Strategy Outputs

Preparation Phase

The activities of the preparation phase need to be completed prior to commencing a CRVS digitisation project. This phase includes alignment with a country's broader CRVS strengthening programme and lays the foundations for a business case for digitised CRVS.

Preparation One: Define a Long-Term Vision for CRVS Digitisation

Overview

The long-term vision for CRVS digitisation sets out a desired future state for CRVS that can specifically be achieved through the use of digital technologies. Aligned with the CRVS Strategic Plan, the long-term vision will be based on high-level needs and will set the direction for the CRVS digitisation project.

Steps

1. Review existing strategy and planning documents, where available, as input for the development of the long-term vision for CRVS digitisation, for example:
 - CRVS Comprehensive Assessment
 - CRVS Strategic Plan (mandatory before beginning the digitisation process)
 - eGovernment Strategy
 - eHealth Strategy

EXPLANATORY NOTE:
 The Ministerial Statement of the Second Conference of African Ministers Responsible for Civil Registration, Durban 2012, made a commitment to “develop costed national plans of action on CRVS that reflect individual country priorities based on comprehensive assessments”

2. Identify discrete elements of these strategies where long term goals can be achieved (at least in part) through the use of technology. These long-term digitisation goals, together, comprise the long-term vision for CRVS digitisation (see table below). Each long-term digitisation goal should be listed in order of priority and achievability, clearly identifying an expected timeframe in which it will be realised. If the CRVS Strategic Plan is expected to be realised over a 10-year period, the long-term digitisation goals should be realistically distributed over this period.

The broader vision for CRVS will be realised through the implementation of CRVS digitisation together with other initiatives within the CRVS strategic plan e.g. capacity building, legal and policy reform.

Long-Term Digitisation Goal	Timeframe (expected)
Simplification of operational processes through the use of a digital CRVS system	
Annual vital statistics reports compiled from central CRVS database	
Civil Registration services available to citizens within the community	
All civil registration records digitised in a central repository (including historical records)	
Real time monitoring of registration levels and service provision	

Civil registration provided through multiple sources (e.g. health, education)	
Registration records shared between health and civil registration systems	
Real time vital statistics data available to authorised parties for analysis	
Vital event registration as a primary source of data for all national registration systems e.g. National Population Register, National ID.	

CRVS Digitisation Long Term Vision

4. Share the long-term vision for CRVS digitisation with relevant stakeholders to ensure alignment with other initiatives within the CRVS Strategic Plan and other national planning initiatives.

Skills Required

- Civil Registration Expert
- Government Sponsor
- Government IT Expert
- Government CRVS Stakeholders
- Legal expert

Outputs

- Long Term Vision for CRVS Digitisation

Guides

- None

Templates

- None

Examples

- Botswana CRVS Digitisation Vision
- Zambia National Strategic Action Plan for CRVS
- Tanzania To-Be Value Chain

Preparation Two: Develop a Business Case for CRVS Digitisation

Overview

The Business Case for CRVS Digitisation explains how technology can be a cost-effective means to improve CRVS systems and processes. The document should be used to indicate the expected benefits of CRVS digitisation, to get buy-in from key stakeholders, to justify the technology investment costs and to raise funds for project implementation. The Business Case is developed in two parts. The initial Business Case, developed in this activity, outlines the actual costs of the Analysis and Design Phase and indicative costs for full implementation. This Business Case will be revisited and updated at the beginning of the Implementation Phase to more accurately reflect the findings of the Analysis and Design Phase, including an accurate representation of the defined digital CRVS system and the benefits and costs associated with implementing it.

Steps

1. Complete initial sections of the Business Case for CRVS Digitisation Template with outputs from previous activities as defined below:

- Complete the “Context” section with details from the CRVS Strategic Plan; this will provide the context for why digitisation is needed.

Complete the “Long-Term Vision for CRVS Digitisation” as per the previous activity; this will outline how technology will be used to help achieve the CRVS Strategic Plan and by when.

2. Complete the table in the “Impact of not digitising CRVS systems” section, identifying the risks associated with not using technology to strengthen CRVS systems and processes and the possible impact that this could have.
3. Complete the table in the “Timeframes” section, identifying the expected duration of each phase of work.
4. Complete the table in the “Costings” section. The activities that need to be costed include:
 - Analysis and Design (next phase)
 - System Development & Testing (indicative)
 - Pilot Implementation (indicative)
 - Full Implementation (indicative)
 - Operational, support and maintenance costs (indicative)
5. Share completed CRVS Digitisation Business Case with key stakeholders to get buy-in and to secure funding when this is not yet in place.

EXPLANATORY NOTE:
Business Case for CRVS Digitisation
WHY is digitisation needed?
HOW will technology be used to respond to current needs?
WHEN will the long-term digitisation goals be realised?

Skills Required

- Civil Registration Expert

- Government Sponsor
- Government IT Expert
- Financial manager
- Legal expert
- Project Manager

Outputs

- Business Case for CRVS Digitisation

Guides

- None

Templates

- CRVS Business Case Template

Examples

- None

Analysis and Design Phase

The activities of the analysis and design phase provide step-by-step guidance of how to align ICT with the CRVS business need. Following the activities in a sequential manner will ensure that the relevant country context is fully analysed and traceable from the CRVS business requirements through to the detailed requirements for an enabling CRVS system.

Analysis & Design One: Initiate CRVS Digitisation Project

Overview

In order to execute a successful CRVS Digitisation Project, it is critical to initiate the project in a structured manner, clearly defining expectations and standards to all relevant actors and stakeholders. To do this, a Project Initiation Document (PID) should be created, formally documenting the purpose, approach, standards and timelines of the analysis and design phase. The PID should be shared with all relevant parties so that the scope of work and their roles and responsibilities are acknowledged and accepted before formal work begins. In subsequent activities, this advanced project planning will help guide project decision-making and management and will be updated to reflect the change in focus of activities at the beginning of the Implementation Phase.

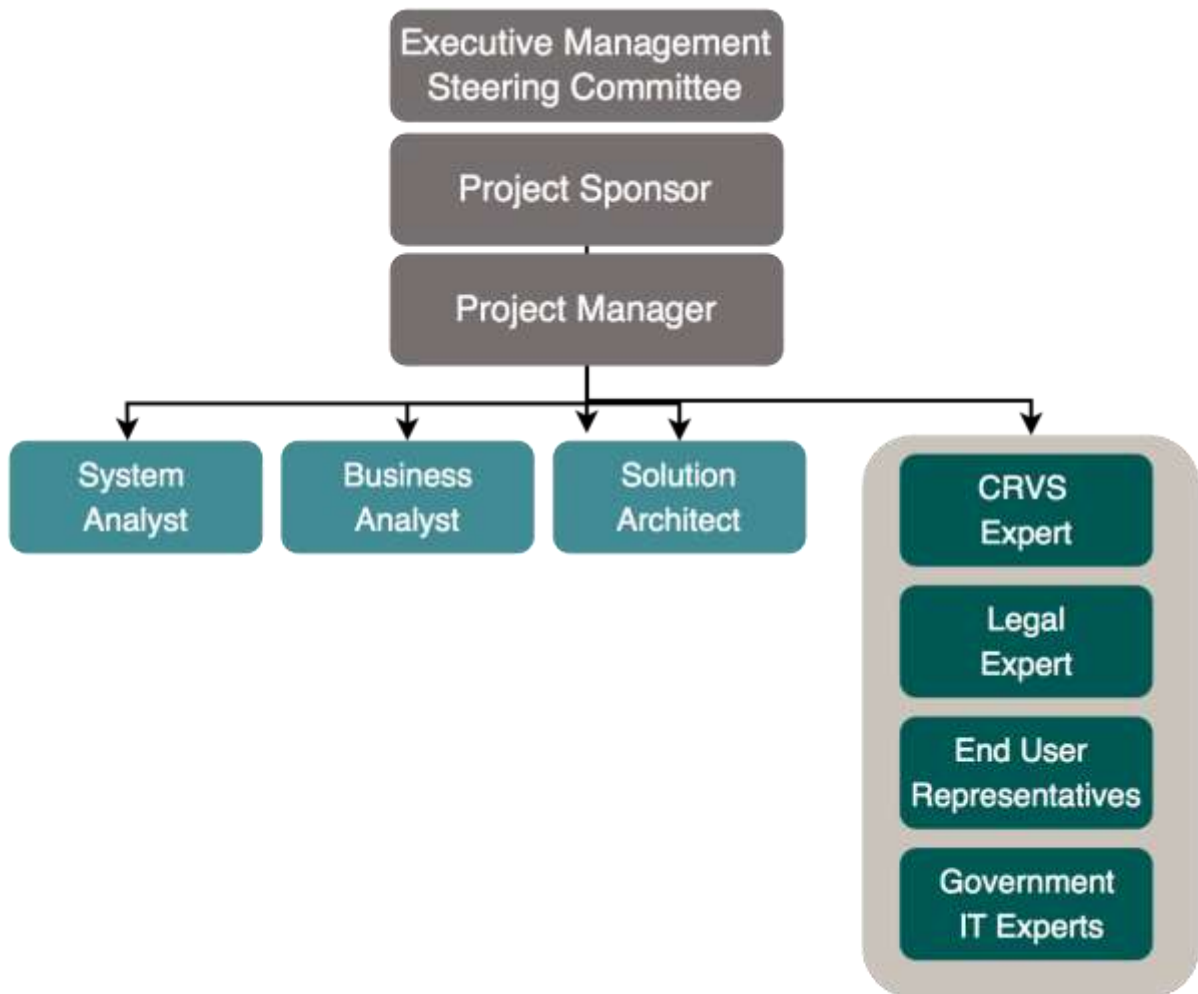
Steps:

For all of the steps below, complete the related section in the Project Initiation Document (PID) Template.

1. Document the Project Charter, ensuring that all of the questions below are answered:
 - What mandate exists that requires you to digitise your CRVS processes; who granted this mandate?
 - How is CRVS digitisation being funded?
 - What are the objectives of developing a digitised CRVS system?
 - What is the scope of the Analysis & Design phase activities?
2. Establish a Project Management structure and team, identifying required resources for the analysis and design phase of the digitisation activities (sample roles shown below):
 - What skills and resources are required to complete each activity in the Analysis and Design phase?
 - What Project Management functions are needed to effectively manage the project?
 - What reporting requirements are required, to whom, and at what frequency?

DEFINITION

A project charter is a statement of the scope, objectives and participants in a project and is a critical document to ensure that all those involved in the



Typical Project Organisation

3. Establish a governance structure for CRVS Digitisation activities, considering:
 - What stakeholders need to be involved in key decision-making activities?
 - What decision-making bodies are required? How will decisions be made? In what forum will these decisions be made?
 - What reporting requirements are required, to whom, and at what frequency?
 - Who is the project sponsor/champion e.g. a senior stakeholder who can align interests, resolve potential conflicts, and champion the project at a senior level?
4. Develop a workplan of activities for all Analysis and Design phase activities. Ensure that ample time is given to complete each activity.
5. Identify appropriate tools, repositories and processes to be used throughout the project lifecycle.
 - What software will you use to document technical architecture diagrams, processes, and other documents?
 - Where will these tools be stored?
 - What training is required to ensure that these tools are used correctly?

6. Review the proposed architecture principles in the Project Initiation Document (PID) Template and edit/update as appropriate for the organisation, consider:

- What business rules/principles exist that can be used as inputs into the architecture principles?
- What IT standards should exist that will guide all CRVS digitisation work?

EXPLANATORY NOTE

Architecture principles

define the underlying general rules and guidelines for the use and deployment of all IT resources and assets across the enterprise. They reflect a level of consensus among

7. Obtain approval for the PID with relevant stakeholders as identified in the RACI matrix.
- On obtaining approval, share PID with all project actors and stakeholders.

Required Skills

- Civil Registration Expert
- Government IT Expert
- Government Sponsor
- Business Analyst
- Project Manager

Outputs

- Project Initiation Document (PID)

Guides

- None

Templates

- CRVS Project Initiation Document (PID) Template

Examples

- None

Analysis & Design Two: Define the CRVS Business Architecture

Overview

The purpose of defining a Business Architecture is to build a common understanding of the organisation's purpose, functions and needs in order to guide and manage organisational activities and change. In this context, the organisation comprises those authorities responsible for CRVS. Subsequent steps in the CRVS digitisation process must align with the organisational foundations defined in the Business Architecture e.g. target digitised CRVS systems and processes must meet the business requirements.

Steps

1. Using the [CRVS Business Architecture Template](#), document your country's current CRVS Business Architecture, including all the components listed below:



CRVS Business Domain

- Ensure that business processes documented include primary (core), support and management processes.
- Refer to the [Country CRVS Business Architecture Examples](#) in the Toolbox to see how other countries have completed this activity.

2. Define your business requirements through consultation with key stakeholders as identified in the RACI Matrix developed in your Project implementation Document. These requirements will be used throughout the Analysis & Design Phase to inform the target digitised CRVS system and processes.

DEFINITION

Business Requirement: What does the business need to complete its defined functions (as defined in the business architecture)?

Simply - Who needs what and why?

e.g. "Citizens must be able to access registration services"

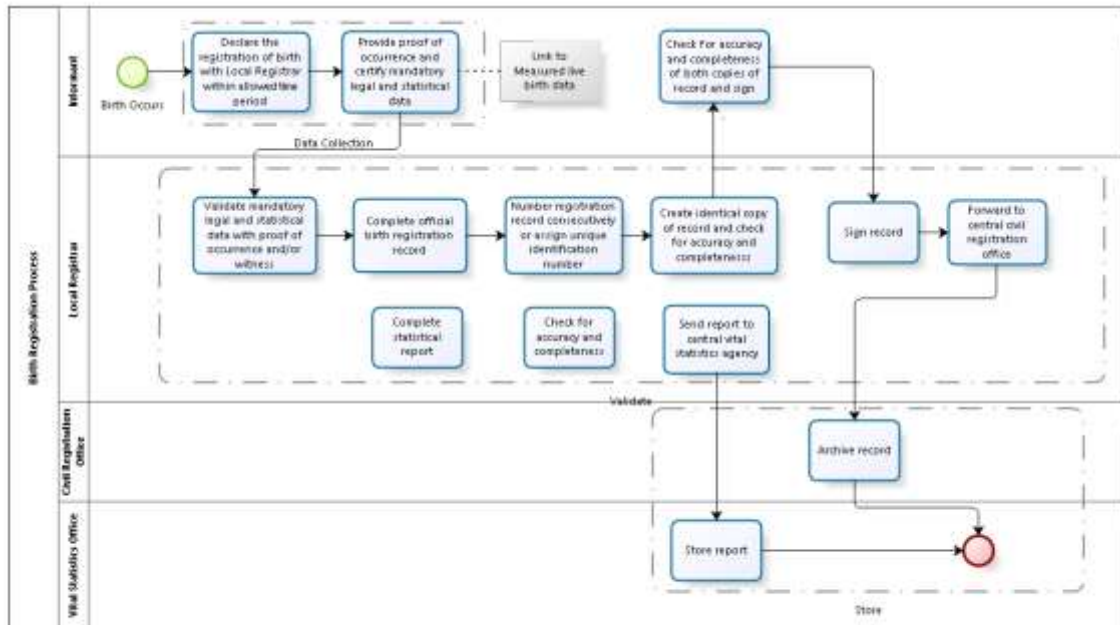
3. For each process identified within your CRVS Business Architecture, document the process using a standard business process modelling technique, as per the example below.
 - Use a business process modelling tool and the Business Process Modelling Guide to develop a visual model of your CRVS processes flow (free business process modelling tools are available e.g. Bizagi).
 - For each of the business processes modelled, document additional information for each step as shown in the CRVS Business Process Modelling Guide.
 - Refer to the Country CRVS Business Process Examples to see how other countries have completed this activity.

TIP

Business Process Modelling:

A Business Process can be defined as a self-contained, logical set of activities that are executed to accomplish a specific business objective. See the Business Process Modelling Guide and guidance detailed below:

- The overall process should be contained within a single “Pool”.
- Each actor involved in the process must have its own “Swimlane”, allocated inside a “Pool”.
- The business process itself is made up of “Elements” e.g. “Activities” and “Decisions”. “Sub-processes” are used to model sub-workflows.
- “Documents” and “Data Stores” can be included to model information flows.
- Optionally, business rules (and legal provisions) may be modelled within a dedicated “Swimlane”.



Skills Required

- Civil Registration Expert
- Government CRVS Stakeholders
- Business Analyst

Outputs

- CRVS Business Architecture
- Business Process Model Diagrams

Guides

- Business Process Modelling Guide

Templates

- CRVS Business Architecture Template

Examples

- Kenya CRS Business Architecture
- Kenya Birth Registration As-Is Process

Explanatory Note

All vital event processes need to be identified and documented. Included below is a list of the types of processes that should be documented for birth:

- Regular
- Birth (Home)
- Birth (Medical Facility)
- Late
- Delayed
- Amend/Change

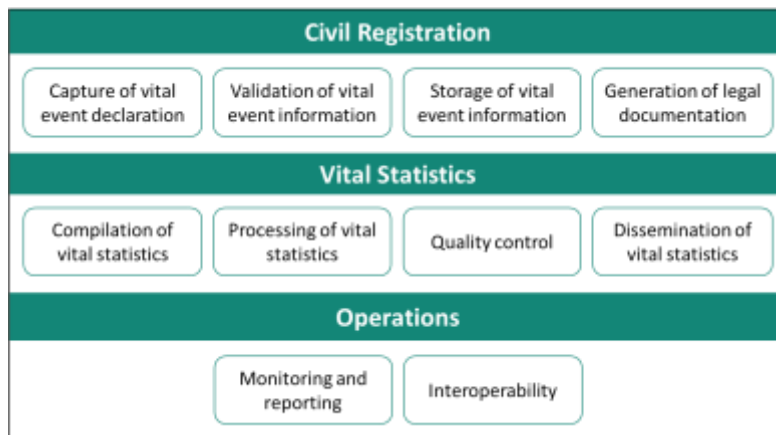
Analysis & Design Three: Conduct an As-Is Assessment of the CRVS Landscape

Overview

In order to identify appropriate technologies to support CRVS, an “As-Is” assessment must be conducted to understand the strengths and weaknesses of the existing CRVS Landscape, including several components documented in the Business Architecture e.g. CRVS business processes. Basing subsequent technology decisions on these findings will ensure that technology interventions directly address identified weaknesses. *Note. If a Comprehensive Assessment has been conducted this should be used as an input to complete the below steps.*

Steps:

1. Identify relevant stakeholders to be consulted and involved throughout the As-Is assessment, as identified in the RACI Matrix developed in *Analysis & Design 1*.
2. Assess the CRVS business processes documented in the previous activity, considering their effectiveness during "Business as Usual" and emergency situations (natural and conflict).
 - Identify all process bottlenecks, inefficiencies, delays and informal practices, consulting stakeholders involved in the current CRVS process.
 - Assess the capacity of actors to conduct current process steps, consulting stakeholders involved in the current CRVS process.
 - Identify registration barriers i.e. reasons why citizens do not actively register vital events, consulting a representative sample of citizens and those involved in administering the current CRVS process.
 - Annotate the business process flow diagrams with identified process bottlenecks and registration barriers. See Country Business Process Assessment Examples in the Toolbox.
3. Assess the CRVS System Architecture:
 - Document the existing CRVS system architecture (including interfaces with other systems) using an architectural diagram as per Country System Architecture Diagram Examples in the Toolbox.
 - Document the existing logical / physical data model.
 - Assess the ability of the current systems to fulfil the following functions, consulting stakeholders who use the CRVS system:



- Assess the current systems based on the following criteria, consulting stakeholders who maintain and use the CRVS system.

- Accuracy of data
- Timeliness/relevance of data
- System reliability
- System performance
- System security
- Recoverability
- Accessibility to users
- Usability
- Legality

- Annotate the system architecture diagram with any identified weaknesses, including the absence of key system components. See [Country System Architecture Assessment Examples](#) in the Toolbox.

Skills Required

- Civil Registration Expert
- Business Analyst
- Government IT Expert
- Systems Analyst

Outputs

- Annotated Business Process Flow Diagrams
- Annotated System Architecture Diagram

Templates

- None

Examples

- Country System Architecture Assessment Example(s)
 - Kenya AS-IS System Architecture Assessment Map
- Country Business Process Assessment Example(s)
 - Kenya Birth Registration As-Is Process Assessment

Guides

- None

Analysis & Design Four: Identify CRVS Digitisation Opportunities & Limitations

Overview

In order to identify appropriate CRVS technologies that are feasible in the current context, it is important to understand what opportunities and limitations exist in-country to support a digital CRVS system. These opportunities will later be used to inform the definition of the target digital CRVS system and processes.

Steps:

1. Assess the current physical and technical infrastructure available in-country and how it can be used to support a digital CRVS system, consulting stakeholders with technical knowledge within both the government and private sector.
 - What physical and technical infrastructure exists for CRVS e.g. Office buildings, computers, printer/scanners, internet connectivity, electricity?
 - What physical and technical infrastructure exists across the country e.g. electricity, internet connectivity, data centres, mobile phone networks and coverage?
 - What e-Government technical infrastructure exists e.g. data centres, shared services, cloud computing, system integration platforms?
 - What is the rate of mobile phone penetration and on which type of devices (e.g. smartphone, feature phone)?
2. Identify and assess current human capacity to build, maintain and use digital CRVS systems.
 - What government capacity exists to build and/or maintain a digital CRVS system?
 - What private sector capacity exists to build and/or maintain a digital CRVS system?
 - What is the current capacity of CRVS staff to use digital systems in their day-to-day job?
 - Who are the potential actors that could perform new roles within the registration process e.g. community based registration, social welfare programmes?
 - How do citizens perceive the use of digital technologies for capturing personal information?
3. Identify and assess existing initiatives that might inform the design of the digitised CRVS system.
 - What digital projects are being implemented by other ministries or departments which have synergies with CRVS e.g. mHealth application being used to register mothers and newborns?
 - What digital projects for CRVS are being piloted by non-government organisations e.g. data collection tool being used to monitor vital event registration?
4. Identify and assess system integration opportunities.

- What is the perceived necessity and potential to integrate digitised CRVS within the broader eGovernment systems landscape e.g. health systems, education systems, population registers, national identity systems and statistics systems?
 - What systems have the potential to be a source of vital event information e.g. health registration, school enrolment systems?
 - What data is already being captured (manually or digitally) for purposes other than civil registration that closely resembles vital events data e.g. vaccination records of infants?
5. Assess what legal changes are required to support a digitised CRVS system.
- Assess the existing legislative and policy landscape, considering whether it supports digital CRVS systems and processes.
 - Identify legal and policy changes required to support and facilitate digitised CRVS systems and processes. Consider all elements identified in the Elemental Legal Framework for the Civil Registry (UNICEF, 2015).



Elemental Legal Framework for the Civil Registry

6. For each of the business requirements defined in the CRVS Business Architecture, consider the opportunities and limitations identified above to determine:
- Which requirements can be addressed through the use of digital technologies?
 - Which requirements cannot be addressed through technology, but demand other responses e.g. increasing awareness through the use of a communications campaign? These requirements should be fed into the CRVS strategic planning process.

Skills Required

- Civil Registration Expert
- Government IT Expert
- Legal Expert
- Business Analyst
- Solution Architect

Outputs

- List of CRVS digitisation opportunities and limitations

Templates

- None

Guides

- None

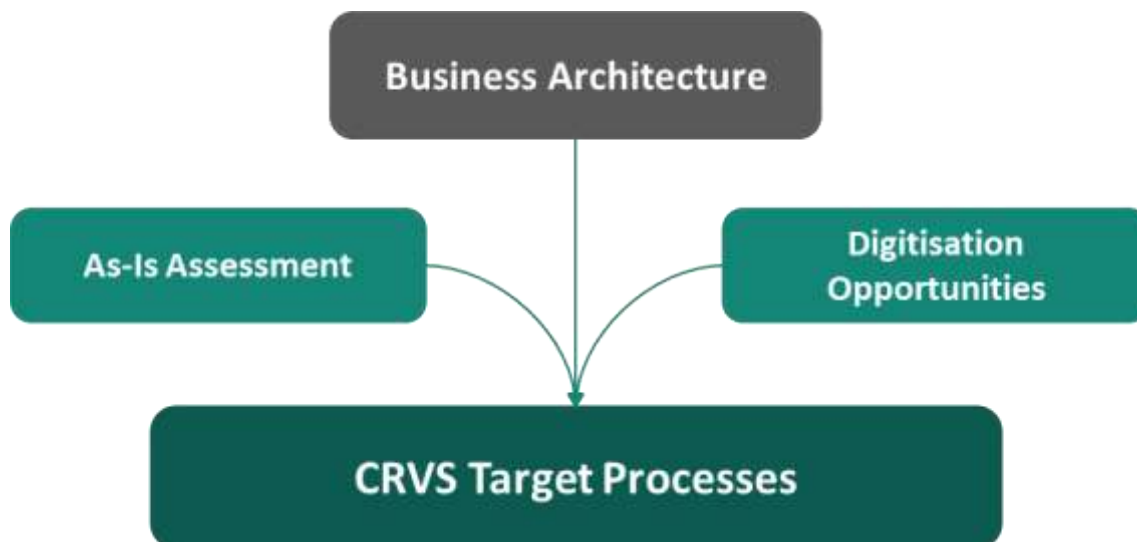
Examples

- None

Analysis & Design Five: Document the Target CRVS Processes

Overview

Target CRVS processes are re-defined processes that respond directly to the weaknesses identified in the As-Is Assessment and the opportunities identified in the previous activity. The target processes should simplify and streamline existing processes i.e. reducing bureaucracy, facilitating the decentralisation of civil registration and improving service provision to citizens. The target processes will be supported by the Target System Architecture which enables simplification and automation.



Steps:

1. Use a business process modelling tool to document your target CRVS processes.
 - Use the Generic CRVS Process Description in the CRVS Business Process Modelling Guide to ensure that key components of a vital event process are included in the documentation and description of your high-level processes.
 - Refer to the [To-Be Country CRVS Business Process Examples](#) to see how other countries have completed this activity.
2. Identify and understand the implications of the target CRVS processes on Human Resources and define staffing requirements and new roles and responsibilities of implicated actors.
3. Define legal and policy changes required as a result of the newly defined CRVS processes and use of technology, considering the items included in the table below.

Area for consideration	Reason	Consider
Legal Framework	To understand if the digital CRVS system and processes are	<ul style="list-style-type: none"> • Are digital records legally recognised? • Is an interim paper-based process required?

	supported within the legal framework	<ul style="list-style-type: none"> • Which authorities/individuals are permitted to capture data? If new actors have been proposed to capture data through mobile devices is this legal? • Can digital signatures be used (if relevant)? • What are the implications of the base legal framework in-country towards the system to support the system? • What anti-discrimination provisions are in place?
Personal data privacy	To understand if citizens' personal data is safe and protected in the digital CRVS system	<ul style="list-style-type: none"> • What data protection laws exist to cover security, privacy and confidentiality? Are they effective? • What provisions are made in law for the incorrect use of electronic data? • What provisions are made in law for data rights and ownership? • What anti-surveillance provisions are in place?

Legal Considerations

4. Review CRVS Target Processes with relevant stakeholders as per the RACI Matrix defined in *your* Project implementation Document.

Skills Required

- Civil Registration Expert
- Business Analyst
- Systems Analyst

Outputs

- Target CRVS Processes
- System Use Cases

Guide

- CRVS Business Process Modelling Guide

Templates

- None

Examples

- To-Be Country CRVS Business Process Example(s)
 - Kenya TO-BE Birth Registration Process
 - Kenya TO-BE Death Registration Process

Analysis & Design Six: Define the CRVS Information Requirements

Overview

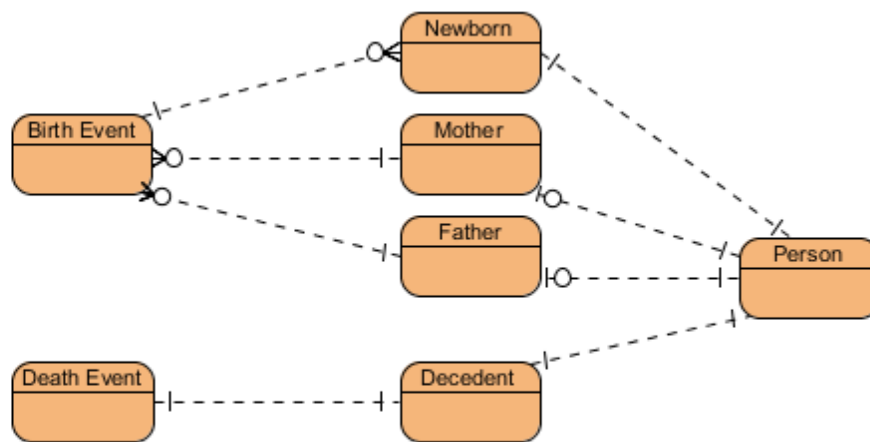
Before being able to define what systems are required to support the CRVS business need, it is necessary to understand what information requirements exist i.e. what data is collected, stored and put to use within the existing CRVS system. At the highest level this means understanding what logical entities exist within the CRVS business domain and the relationships between them. Together with the Data Dictionary, they form the basis of the data architecture which, when detailed at the lowest level, will later define the CRVS database design.

Steps

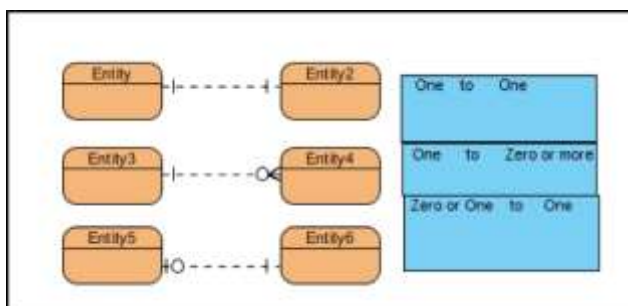
1. Develop a target data model using the Generic Information Modelling Guide.

The diagram below shows at a conceptual level the informational relationships between the vital events of birth and death and the person, who over a lifetime inhabits various roles such as a newborn, mother, father and decedent. Each event and each role is associated with a set of data.

DEFINITION
Entity-relationship diagram (ERD) is a graphical representation of an information system that shows the relationship between people, objects, places, concepts



CRVS Conceptual Data Model



2. Consider the below questions to better understand the information requirements:
- Where will master data be stored?
 - How will each data entity be used by each CRVS actor and process?
 - How and where will each data entity be created, stored, transported and reported?
 - What data transformation is required to support the information exchange between solution components?

DEFINITION

Data Dictionary is a centralised repository of information about data, such as meaning, relationships to other data, origin, usage, and format.

3. Review and update the Data Dictionary Template to reflect the country's specific CRVS data requirements.

Skills Required

- Government IT Expert
- Solution Architect
- Systems Analyst
- Civil Registration Expert

Outputs

- Target Entity Relationship Diagram
- Target Data Dictionary

Guides

- CRVS Information Modelling Guide
- CRVS Data Dictionary Guide

Templates

- Data Dictionary Template

Examples

- None

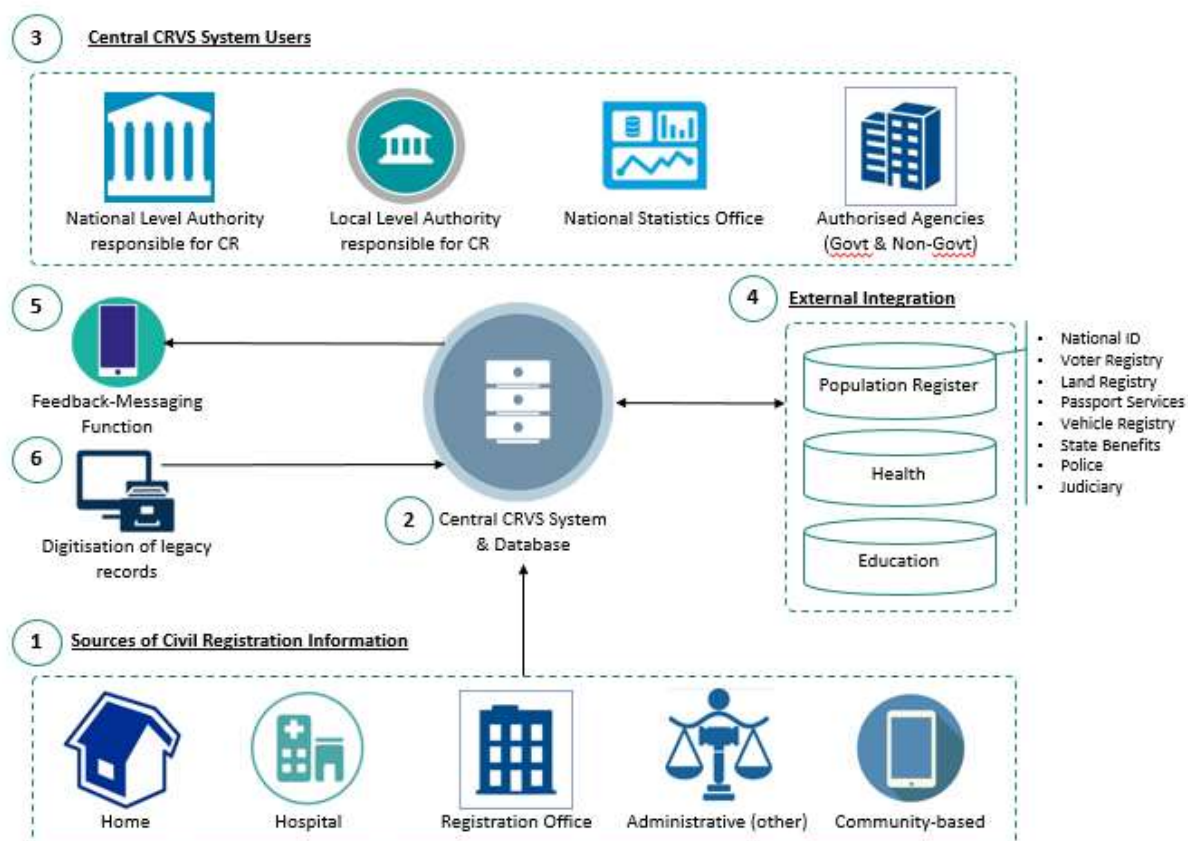
Analysis & Design Seven: Define Target System Architecture

Overview

The target system architecture is a holistic model of the applications required to fulfil business needs and support target processes.

Steps:

1. Define your target system architecture, referring to the Target System Architecture Example below which highlights common features that should be considered when developing a CRVS system. A CRVS system does not sit in isolation; it relies on data inputs from a variety of potential sources and should also provide access to other systems/authorised agencies for different purposes. Potential system interactions are explained in the table below.
 - Refer to the System Architecture Reference Example within the Future State Architecture Guide for guidance.
 - Refer to the Country System Future State Architecture Examples to see how other countries have completed this activity.



Target System Architecture Example

Feature	Potential Options
	<i>NOTE: All cases below are potential options for consideration only and will depend on the country context.</i>
1. Multiple sources of Civil Registration Information	<ol style="list-style-type: none"> 1. Home: Web-based application that allows home users to register vital event online, provide supporting documentation, pay and select a delivery method for the certificate. 2. Hospital: Web-based/desktop application that allows hospital staff to register vital events (birth and death), transfer data directly to central CRVS system and issue a certificate. 3. Registration Office: Web-based/desktop application that allows responsible registration agents (from responsible authority) to register vital events, transfer data directly to central CRVS system and issue a certificate. 4. Administrative (other): Web-based/desktop application that allows judiciary/police to register vital events, transfer data directly to central CRVS system and issue a certificate. 5. Community Based: Mobile application that allows community registration agents to notify of vital events by gathering civil registration data in the community and submitting to central system for validation and certification.
2. Central System and Database	Central civil registration and vital statistics system that fulfils all required CRVS functions.
3. Central System Users	<ul style="list-style-type: none"> • Authority responsible for civil registration (national level): operational monitoring, system and user management, data analysis for planning & development purposes. • Authority responsible for civil registration (local level): Registration, certification, operational monitoring. • National Statistics Office: Vital statistics analysis and dissemination of reports. • Authorised Agencies (government and non-government): Access to vital statistics for planning & development purposes.
4. Integration with external systems	<ol style="list-style-type: none"> 1. Validation with external data source: When the Central CRVS System receives a vital event notification, it further validates this information against an appropriate external data source e.g. population register, biometric system and auto-populates content in source applications. 2. Access to civil records for: <ul style="list-style-type: none"> • Population Register • Health • Education <p><i>Other as appropriate</i></p>

5.Feedback messaging	-	As the vital event notification is processed and validated, the informant is sent an SMS message containing details of the processing status.
6. 6.Digitisation of legacy records	of	Digitisation and transformation of legacy (paper) records and load into central CRVS system and database

Describe what each application in the target system architecture needs to do as per the list of Digital CRVS System Functions below:

Function	Description
Manage Vital Event Records	Enables users to create, edit, search for, and validate vital event records
Print Legal Documentation	Enables users to display and print legal documentation (vital event certificates)
Generate Vital Statistics Reports	Enables users to define and create vital statistics reports
Assess Quality of Vital Statistics	Enables users to quality assure vital statistics based on internal criteria and against information from other systems
Generate Operational Reports	Enables users to define and create operational reports for performance management
Export Vital Statistics Data	Enables users to export vital statistics data in defined formats for analysis outside the digital CRVS system
Digitise paper records	Enables users to scan paper records into the digital CRVS system and manually input legacy data.
Receive Data	Enables system to receive instructions to create and/or edit vital event records from external sources
Share Data	Enables system to share vital event records with external systems
Manage Reference Data	Enables users to define, edit and delete reference data e.g. registration locations
Manage Users and Permissions	Enables an administrator to create, update and deactivate system users and assign permissions to and revoke permissions from those users
Back-up and Restore	Enables an administrator to back-up and restore data from and to the digitised CRVS system
Monitor system performance	Enables an administrator to define and run reports that monitor system performance

Digital CRVS System Functions

Skills Required

- Solution Architect

- Civil Registration Expert
- Government IT Expert
- Systems Analyst

Outputs

- Target System Architecture Diagram

Guide

- Future State Architecture Guide

Template

- None

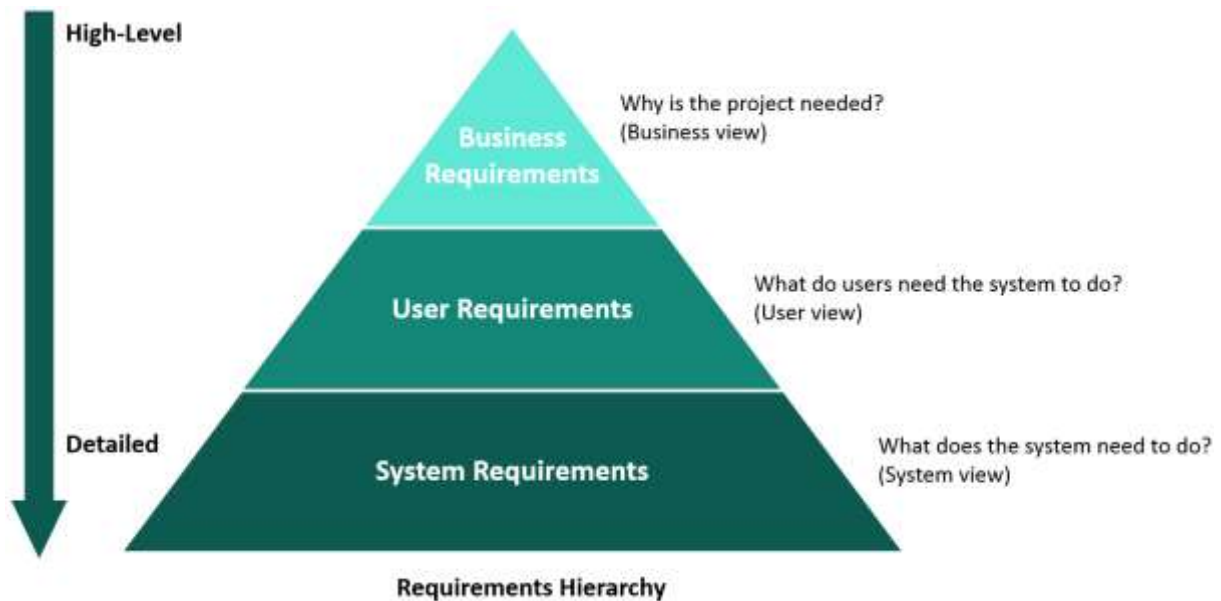
Examples

- Future State Architecture Examples
 - Simple Future State System Architecture
 - Integrated CRVS System Architecture
 - Interoperable CRVS System Architecture
- Country System Architecture Example(s)
 - Kenya Future State Architecture
 - Namibia Future State Architecture

Analysis & Design Eight: Define System Requirements

Overview

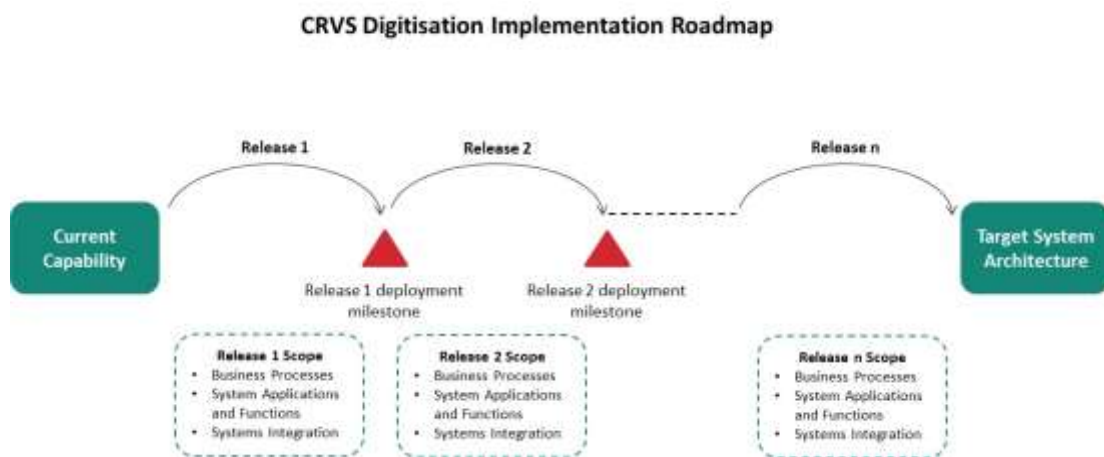
System requirements are clearly articulated statements of what a system must be able to do in order to satisfy stakeholder needs and requirements and are derived from business requirements and user requirements, as per the “Requirements Hierarchy” figure below. They should be defined in two clear categories, functional and non-functional. Functional requirements describe the required behaviour and functions of the system. Non-functional requirements describe specific criteria that can be used to judge the operation of a system e.g. performance, security, availability.



Steps:

The Target System Architecture describes the desired system end-state, but implementing all functionality at once in one release is likely to be unmanageable and not deliver stakeholder expectations. Depending on the gap between current capabilities and the desired end-state, you will need to define the scope for each release in terms of business functions and CRVS processes to be supported, considering what is realistic and will deliver early benefits.

1. Document a high-level implementation roadmap that defines the scope of all releases and their implementation schedule to realise the Target CRVS Processes and Target System Architecture. This roadmap should show releases being implemented over time using a modular and incremental approach, as per the indicative figure below.



For each release, follow the below steps.

2. Define system use cases for the release scope using the CRVS Use Case Template, based on the user/system interactions defined in the target CRVS processes.

TIP: How to write a good use case

- Identify all the different users of the system and the roles they play within the system
- For each user role, identify all the significant goals the users have that the system will support.
- Create a use case for each goal, following the use case template. Maintain the same level of detail throughout the use case. Steps in higher-level use cases may be treated as goals for lower level (i.e., more detailed) use cases.
- Structure the use cases but beware of over-structuring, as this can make the use cases harder to follow.
- Review and validate with users

3. Document user personas for all actors involved in the system use cases for the release scope using the User Personas Template to identify key characteristics of the user. Using input from user research at the focal point of design decisions ensures that the system works in such a way that fulfils user needs.
4. Define the full list of functional requirements for the release scope by reviewing the target system architecture, processes, use cases, and user personas in order to identify required functionality.
 - The CRVS Requirements Template includes a sample set of functional requirements based on the use case example included in the Use Case Template.
 - Refer to the Country CRVS System Requirements Examples to see how other countries have completed this activity.
5. Define the full list of non-functional requirements for the release scope considering required operational standards and non-functional standards provided below. Defining a comprehensive list of non-functional requirements mitigates the risk of the system not performing as expected, allowing you to define performance standards.
 - The CRVS Requirements Template includes a common set of non-functional requirements.

Type of Non-Functional Requirements	Description
Performance related, observable requirements	These requirements allow you to define how you want and need the system to perform within defined parameters to ensure high quality performance, minimise down-time and fulfil user needs. This will include reliability, availability, usability and security.

Requirements that support system evolution over time	These requirements allow you to define ways in which the system can be adapted and evolve as the number of users and amount of data in the system increases and requirements further develop. These will include scalability, adaptability, maintainability and extensibility
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Key Non-Functional Requirements: Defining Performance Standards

Consider the below standards when defining your non-functional requirements to take advantage of pre-existing internationally recognised standards.

Category	Sub-category	Sample Standards
Technical	IT Network	ISO/IEC/IEEE 8802
	Software quality management system construction	ISO 9001:2000
	Biometrics	ISO/IEC 19784/5
	Scanning (of historical paper records)	United Nations Department of Management Archives and Records Management Section, Standard, April 2009, Recod-keeping Requirements for Digitization Electronic Communications and Transactions Act, 2002 (Act No. 25 of 2002) South Africa
	Telecommunications	ISO ICS 33.040
Security	Information and Records Management	ISO 15489
	Information Security Management	ISO/IEC 27002
	Business Continuity Management	ISO 223.1
Privacy	Data Protection	ISO/IEC 27001
	Freedom of Information	PAIA Act No. 2, 2000, South Africa
	Biometrics	ISO/IEC 19794/5
Auditing	Information and Records Management	ISO 15489

1. Define system integration requirements for the release scope, considering the data consumed and provided by each application and consistent with the entity-relationship diagram.
 - The CRVS Requirements Template includes a common set of integration requirements.
2. Define data migration requirements:
 - What data will need to be migrated to the new system?

- What level of transformation, weeding and cleansing is required to ensure that the data meets the requirements and constraints of the target system?
3. Consider whether you want to define what type of platform should be developed. If developing the system internally, you will need to carefully consider the below options. If procuring the system from an external vendor, you can also ask for specific justification of the use of one platform type and decide based on different proposals.

TIP – Selecting a Platform for the Long-Term
 When considering proposals from potential vendors, it is critical to assess which platform type is appropriate for your context and that will adapt and grow as the solution evolves; this will also help prevent vendor and technology lock-in, a fact that the World Bank's Digital Identity Toolkit, A Guide for Stakeholders in Africa (June 2014) clearly identifies as a challenge for National ID systems as well.

“Vendor and technology lock-in is an important consideration since identity systems tend to develop a network effect, i.e. they increase in size and value as more people enroll and more governmental and non-governmental programs depend on them. This dependency - whose effect is often seen at the time of contract renewal, in the form of incumbent or legacy system advantage - makes it harder (or more costly) to migrate from one vendor or technology to another.”

6. The below table outlines the pros and cons of different platform types.

Platform Type	Pros	Cons
Out-of-the-box software	<ul style="list-style-type: none"> • Lower up-front costs • Know what you’re getting • Shorter delivery timescale • Support often included • Upgrades often free/at a reduced cost • Already tested/refined through other implementations • Community support available (through forums & expert users) 	<ul style="list-style-type: none"> • May have to adjust processes to meet software limitations • Feature requests ignored if larger customer base do not demand it • High customisation fees • If costs are charged per user, costs can be very high
Custom-developed software	<ul style="list-style-type: none"> • Get what you need/want • Freedom to change the software to align with business needs • Built with your business and employees in mind 	<ul style="list-style-type: none"> • High up-front costs • All changes to the software come with an associated cost

	<ul style="list-style-type: none"> • Potential to engage local IT industry • No licensing costs • Ability to brand the software • Specific application support from people who know the platform 	<ul style="list-style-type: none"> • Software might still not fulfil all needs/wants • Dependent on technical capabilities of the team hired to develop • Support dependent on availability of developers and people who know the custom software
Open Source software	<ul style="list-style-type: none"> • Few, if any, licensing fees • Easy to manage due to the absence of licensing requirements • Continually evolving as developer add and modify it • Ability to update the software to meet the needs of your business • Not tied to a particular vendor's platform that only works with their other systems 	<ul style="list-style-type: none"> • No guaranteed support, dependent on community of users to respond to and fix problems • Software can be orphaned when developers stop updating it • Evolves with developer's wishes rather than user/business needs • Malicious users could negatively update the software
Cloud Hosted Solution	<ul style="list-style-type: none"> • Cost-effective - lower up-front costs, removes need to buy expensive software and pay for licensing and lower traditional server costs • Reduces the need for specialised skills to maintain the service • Accessibility - allows access from multiple platforms • Adaptability - enables almost immediate use without application setup and installation • Data centralisation - all your data in one place that can be accessed remotely • Scalability – allow for easier and more flexibility scalability to cope with increased transaction loads as and when needed • Cloud security 	<ul style="list-style-type: none"> • Low bandwidth will negatively affect performance • Lack of insight into your network - difficult to resolve bugs • Data protection legislation and/or government policies may prohibit the use of cloud-based data storage

	<ul style="list-style-type: none"> • Provides a flexible testing environment 	
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4. Review System Requirements with relevant stakeholders as per the RACI Matrix defined in your Project Implementation Document.
8. Define a change control process that will ensure that any changes are approved through the correct channels and communicated to all parties. See the [Change Control Guide](#) for guidance on how to do this.

Skills Required

- Solution Architect
- Civil Registration Expert
- Government IT Expert
- Business Analyst
- Systems Analyst

Outputs

- CRVS Digitisation Implementation Roadmap
- Use Cases
- User Personas
- Functional and Non-Functional Requirements
- Change Control Process

Guide

- Change Control Guide

Templates

- User Personas Template
- Use Case Template
- CRVS System Requirements Template
- Change Request Log Template

Examples

- Country CRVS System Requirements Examples

Implementation Planning Phase

The activities of the implementation phase will support the creation of a comprehensive workplan for your CRVS digitization project, from the selection of software vendors through to the testing and deployment of ICT solutions in the field and subsequent scale-up.

Implementation Planning One: Document the CRVS Digitisation Implementation Plan

Overview

On completion of all activities in the Analysis and Design phase, it is important to take time to plan the next phase of activities, from system procurement through to the beginning of full system deployment. Conducting a comprehensive planning exercise mitigates the risk of schedule and cost overruns and a well-defined implementation plan provides a structured framework for ongoing project monitoring and reporting. This should be done within the context of the wider CRVS strategic plan to ensure that the project is not operating in isolation and any interdependencies are clearly acknowledged by all parties. The shift from analysis and design to implementation will also require you to revisit the PID and adjust the project team and governance to support the changing nature of the activities. You will also need to update the CRVS Business Case template to complete the costing sections related to Systems Development, Testing and Implementation.

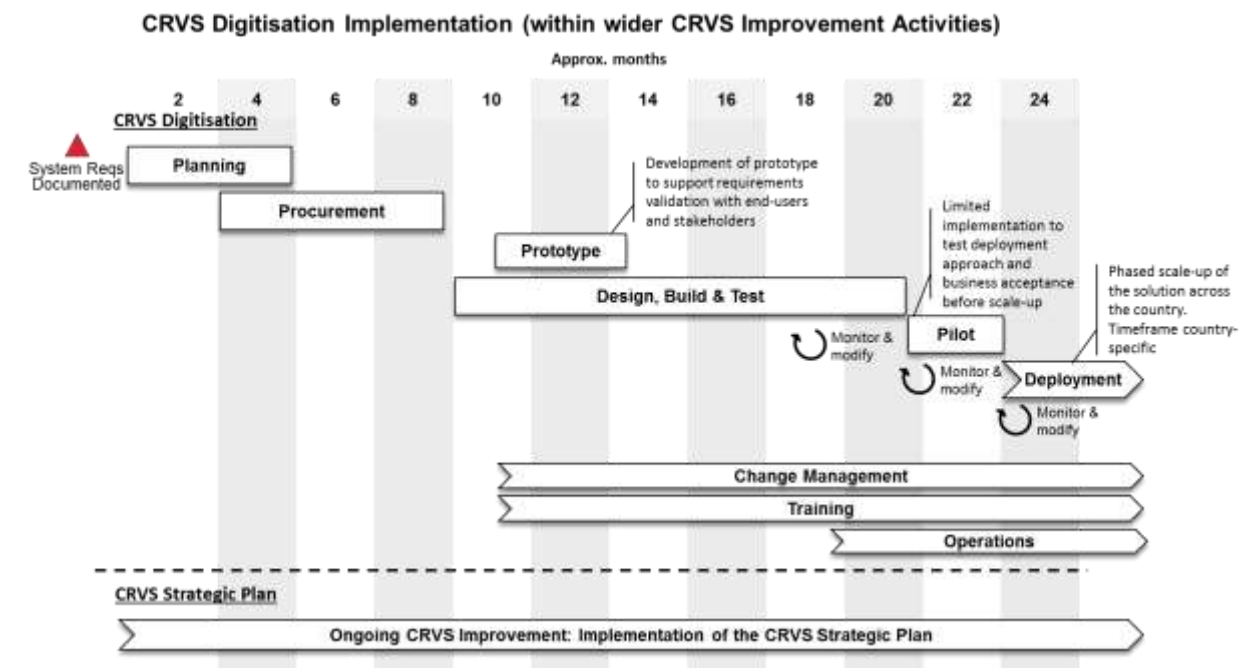
Steps

For each release, follow the below steps:

1. Document an implementation plan using the CRVS Digitisation Implementation Plan Template. The scope of this plan includes implementation planning activities; procurement*; prototype development; design, build and test of the system. pilot and deployment*; activities *; training*, change management* and operations* as per the plan below (timings indicative)..

*See subsequent activities for more detail.

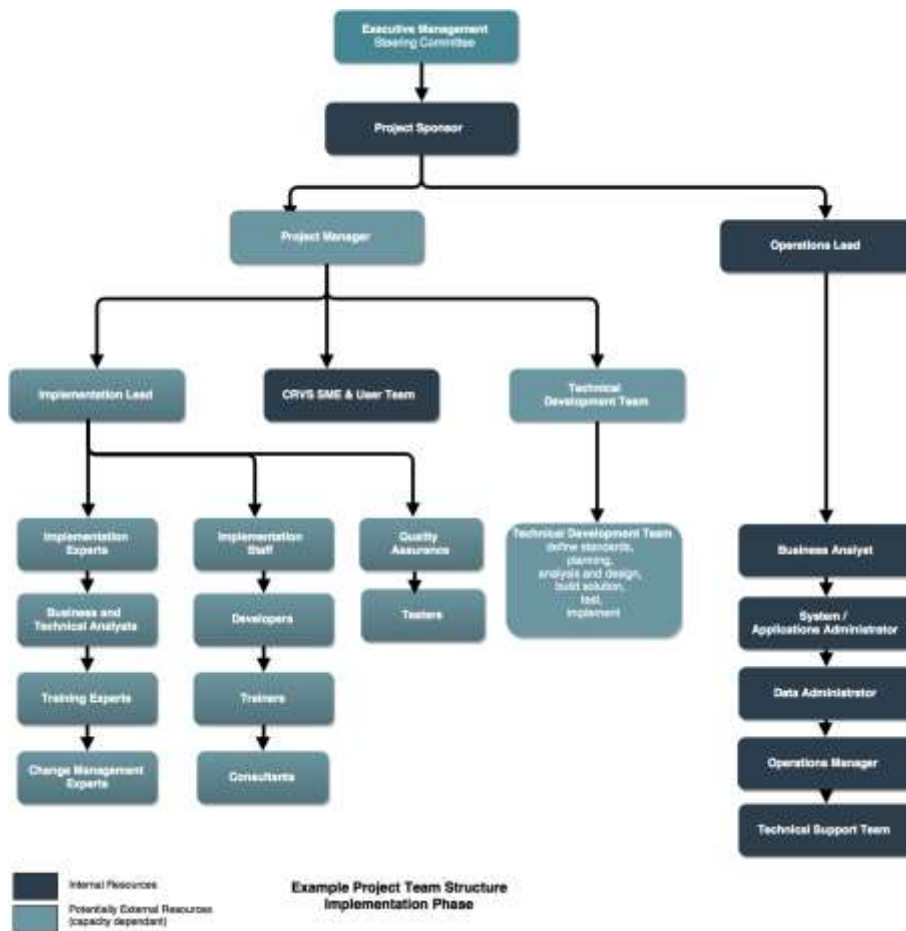
Note: The CRVS Digitisation Implementation Plan must be developed within the wider scope of all CRVS Improvement activities e.g. Legal and policy reforms, organisational change, communication campaigns, capacity building



CRVS Digitisation Implementation Plan

2. Hold an implementation planning review meeting with relevant leads of other CRVS improvement workstreams. Share the implementation plan and highlight interdependencies between workstreams e.g. Legal and policy reforms, without which the digital CRVS system cannot be fully adopted or be fully effective.
3. Rework the Business Case for CRVS Digitisation created in the Preparation Phase to reflect the costs associated with the proposed digitised CRVS system and use this when seeking funds for project implementation.
4. Review the Project Initiation Document (PID) and update content to reflect and support activities in the implementation roadmap and plan, including:
 - Resources required
 - Project management structure
 - Governance structure and required oversight committees e.g. is the existing CRVS Steering Committee still fit for purpose?
 - Stakeholder and project management meetings and frequency
 - RACI
 - Budget
 - Risks and issues log

Obtain approval for the PID with relevant stakeholders as identified in the RACI matrix, share with all project actors and stakeholders and confirm funding.



Skills Required

- Project Manager
- Civil Registration Expert
- Government IT Expert
- Solution Architect
- Finance Manager

Outputs

- CRVS Digitisation Implementation Plan
- Updated and approved Project Initiation Document (PID)

Guide

- None

Templates

- CRVS Digitisation Implementation Plan Template

Examples

- None

Implementation Planning Two: Procure the Digital CRVS system

Overview

Conducting a rigorous procurement process will ensure a strong contractual position for governments and mitigate delivery risk in the provision of software and services. Central to this is a Request for Proposals (RFP) that clearly defines the system, requirements, deliverables and delivery timeframes. The procurement process outlined in this activity provides guidelines of a suggested approach, this should be used in conjunction with standard procurement processes.

Steps:

1. Evaluate the ability of government technical resources to develop the required digital CRVS system in-house, based on:
 - In-house development skills and experience
 - Resource availability
 - The possibility of joint development with other government agencies (e.g. Ministry of Health) or academic institutions

Procuring the services of external developers can be beneficial; if you decide to pursue this avenue, follow the steps below to procure an appropriate developer.

2. Define selection criteria by which all bidding applicants will be measured against (example below). This should specify both minimum and additional desirable criteria and each category should be weighted in terms of importance.

Criteria	Definition	Maximum Points
Personnel	Company Expertise	5
	Team profile(s)	10
Deliverable Response	Implementation Plan	10
	System Architecture	10
	Requirements Coverage	15
	Architecture Standards	10
Support Structure	Support & maintenance contract	10
Cost	Development Licenses Hardware Testing Indicative run-costs Indicative maintenance	30
	Total	100

Example Procurement Criteria

3. Develop a Request for Proposal (RFP) for the Digital CRVS System using the CRVS RFP Template. Include details of:
 - Dates for key activities in the procurement process including bidders conference, submission deadline, notification of application status, oral presentations, announcement of selection.
 - Bidding process e.g. open local competition, open regional competition, short-listed competition or sole source.
 - Submission process.
 - Deliverable schedule.
4. Review the RFP with the internal procurement team to ensure that it is compliant with standard clauses.
5. Release the RFP, providing applicants with enough time to put together proposals (generally 4-6 weeks after RFP release).
6. Arrange a bidder’s conference mid-way through the RFP response period. This allows applicants to spend time reviewing the RFP and develop relevant questions for the conference, as well as allowing enough time for them to develop the proposal
7. Conduct a technical review meeting of the proposal with relevant project/procurement stakeholders. This meeting is conducted to ensure that the proposals meet the criteria specified in the RFP and to determine whether any applicants should be disqualified.
8. Conduct a written review of the proposals with an appropriate selection committee. This committee should be made up of key stakeholders as defined in the RACI.
 - Evaluate each proposal against criteria defined in Step 1.
 - Shortlist top 3 parties.
 - Conduct oral interview/presentations with selected parties and decide on winning proposal.
 - Award tender to selected party.
9. Engage legal department to draft contract considering the “Contract Top-Tips”.

TIPS

Contract Top Tips

1. Define clear list of deliverables and scope of work.
2. Link the delivery schedule with gated reviews to ensure that each step of implementation is reviewed before progressing to the next stage.
3. Link payment to delivery milestones.
4. Review your implementation plan with the awarded party and update it to reflect developer inputs.
5. Define clear statement on the terms of warranty
6. Include clause on Intellectual property and ownership of software.

Skills Required

- Project Manager
- Procurement Manager
- Solution Architect
- Legal Expert
- Operations & Maintenance Manager

Outputs

- Request for Proposal (RFP) for the Digital CRVS System
- Evaluation of Proposals Report
- Contract

Templates

- CRVS RFP Template

Implementation Planning Three: Define the Change Management Approach and Plan

Overview

Change management is the management of transformative activities within an organisation in such a way as to ensure that the changes that occur are fully accepted and integrated into daily routine. An effective change management approach is crucial to facilitate the acceptance and use of the digital CRVS system and processes across the organisation and should be done in alignment with wider CRVS strengthening activities. Clear and targeted communications through a variety of different channels should be used to explain what changes are happening, when, and how they will affect each stakeholder.

Steps

1. Define change management approach by completing the Change Management Approach Template, considering:
 - Which actors are now involved in the process? How does this affect them, their old roles and their management?
 - Who needs to be made aware of system and process changes across all levels of affected institutions?
 - What do each of these actors need to know? E.g. how will CRVS Digitisation changes affect each one? What are the benefits of the changes? When are the changes coming?
 - What communication methods should be employed to share news of the change? E.g. written communication via email, letter; direct communication via team meetings; visual aids i.e. posters.
 - When should each actor be communicated to (depending on their relationship with the changes)?

TIPS

Top Change Management Tips

1. **Be structured in your communications:** build credibility in the CRVS Digitisation Project by formulating a structured communications plan.
2. **Start communicating early.** By informing affected parties early on in the process, you will avoid “fire-fighting” when the change is implemented.
3. **People are the key to success.** Even if you implement an effective and efficient digital CRVS system, if people who interact with it every day do not accept it, the change will fail.
4. **Understand individual needs** and tailor your communications to these needs.
5. **Identify “Change Champions”** within the organisation. Change Champions are individuals at all levels across the organisation who are charged with spreading “good-news” about the upcoming change; responding to queries; and gathering feedback. These individuals are part of the teams that will be affected by the change and thus are able to relate to those affected and respond more effectively than those initiating the change.
6. **Identify a “Project Sponsor”** to champion the change at the highest level and to encourage adoption of the digital CRVS system.

- Who could act as “Change Champions” within the organisation?
 - How will you monitor the acceptance/feedback of the change?
 - How will you respond to change feedback?
2. Identify the required team to implement the change management approach; onboard these resources onto the CRVS Digitisation Team and ensure that they understand the scope and objectives of the CRVS Digitisation Project.
 3. Define communications plan and update Implementation Plan to reflect communication activities and advocacy.
 4. Create communications content that will be used in each identified form of communication.

Skills Required

- Project Manager
- Civil Registration Expert
- Change Management Lead

Outputs

- Change Management Approach
- Communications Plan

Templates

- CRVS Change Management Approach Template

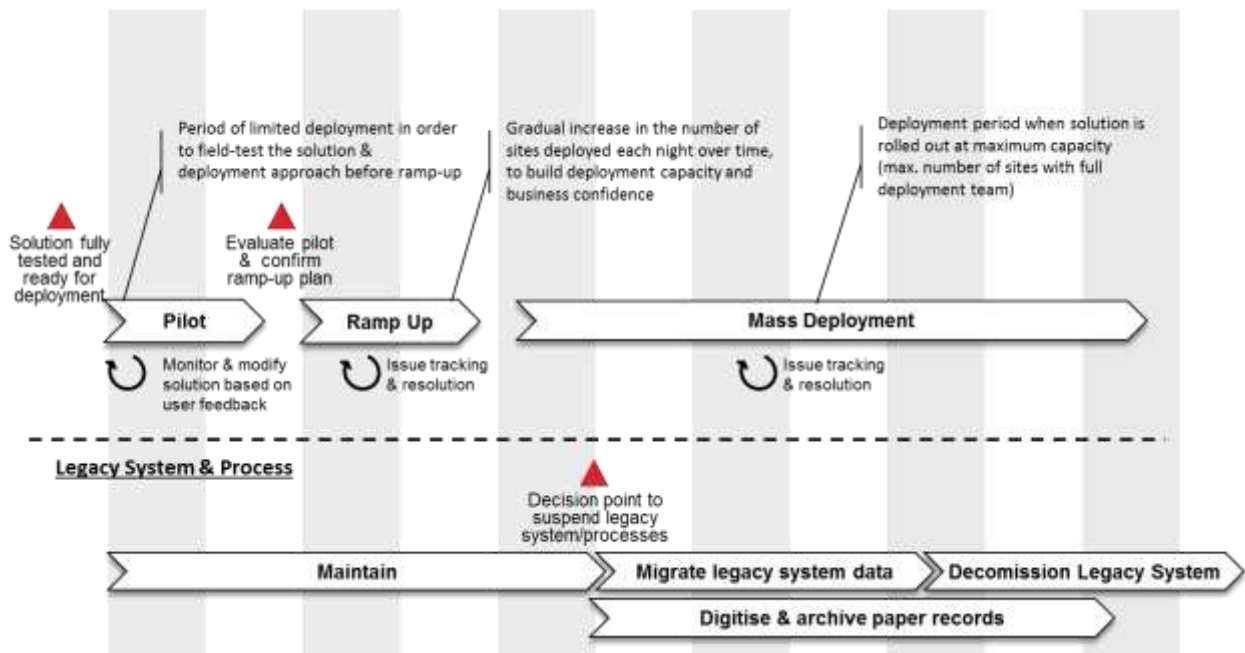
Implementation Planning Four: Define Deployment Approach and Plan

Overview

Deployment is the act of introducing a new technical solution/platform and services to an organisation in a coordinated manner. A successful deployment relies on forward planning, adequate resourcing, on-going monitoring and evaluation and strong communications.

Steps

1. Define deployment approach by completing the Deployment Approach Template, considering:
 - Who needs to be part of the deployment team?
 - Who/which sites should be deployed to first?
 - How is a site deemed “ready for deployment”?
 - What tool will be used to track deployments?
 - Who will attend the deployment?
 - When will the deployment be done? Overnight/during the day/weekend?
 - How and when will the CRVS system integrate / interoperability with other systems (as defined in the system architecture)?
 - How and when will legacy / historical system data be migrated?
 - How and when will legacy vital event records be digitised?
 - How long will legacy system and processes be run in parallel to the target system?
 - What support will be provided the day after deployment? (Day-1 support)
 - How will people raise issues with the application after deployment?
 - How will issues be logged, tracked and resolved?
 - Who will document lessons learned to continue to inform an effective deployment approach?
2. Identify the required team to implement the deployment approach; onboard these resources onto the CRVS Digitisation Team and ensure that they understand the scope and objectives of the CRVS Digitisation Project
3. Define a phased deployment schedule that calls out key decision points throughout the deployment process and update the Implementation Plan to reflect deployment activities.



High-Level CRVS Digitisation Deployment Plan

4. Update the [Deployment Plan Template](#) to reflect your deployment needs and the key project milestones as defined in the previous step. Include all deployment sites, assigning dates for the pilot as and when they become clear.

Skills Required

- Project Manager
- Government IT Expert
- Deployment Lead

Outputs

- Deployment Approach
- Deployment Plan

Templates

- Deployment Approach Template
- Deployment Plan Template

Implementation Planning Five: Define the Training Approach & Plan

Overview

Training IT staff and users in the use of the Digital CRVS system and processes will ensure that the system is used effectively and will mitigate the risk of business rejection and safeguard against improper use.

Steps

1. Define the training approach by completing the Training Approach Template, considering:
 - Who needs to be trained?
 - What training is required/topics need to be covered?
 - How long should the training last?
 - How many people should take part in each training session?
 - How many trainers are required per session?
 - How will you get the most out of the attendees?
 - Where will the training be?
 - How will you structure the training?
 - What training environments are required?
 - How will you evaluate the attendees each day / end of the training?
 - How do we continue to build people's capacity after initial training?
2. Identify the required team to implement the training approach; on-board these resources onto the CRVS Digitisation Team and ensure that they understand the scope and objectives of the CRVS Digitisation Project.
3. Document a training plan to reflect all required training sessions and update the Implementation Plan to reflect training activities.

TIP

Training Top Tips

1. **Define clear learning objectives** which attendees should be competent in by the end of the training session.
2. **Use visual aids**, by displaying information in a variety of formats you will retain the focus of your audience.
3. **Assess participants:** tests don't need to be intimidating, but they are needed to confirm that participants have retained their learnings. Use quizzes and participant demonstrations to assess knowledge gain.
4. **Use the knowledge immediately:** the solution should not be deployed any longer than 2 weeks after training, otherwise people are less likely to retain what they have learned.
5. **Train-the-trainer:** by getting the Developer and/or training experts to train resources within the CRVS department, you will build internal capacity and create a network of "Training Champions", suitably preparing for training activities beyond the lifecycle of the Digitisation project.
6. **Targeted Training:** ensure that the training responds to specific participant needs, tailoring the training in response to these needs and changing the type of Trainer used to deliver this training as appropriate.
7. **Repeat!:** Following the initial training session, it is important to re-train key resources to reinforce and build on their initial learnings.
8. **Plan beyond deployment training:** Plan beyond deployment training: Define ongoing and continuous learning approaches and ensure that ongoing training materials are available to users e.g. online learning portal. New users should also be provided training soon after they start their role.

Skills Required

- Project Manager
- Training Lead

Outputs

- Training Approach
- Training Plan

Templates

- Training Approach and Plan Template

Implementation Planning Six: Define the Testing Approach and Plan

Overview

Testing the digital CRVS system rigorously is essential to ensure that the system is fit for purpose when it is deployed. Testing should be done sequentially, as per the figures below, and trace directly back to system requirements defined in the Analysis and Design Phase.

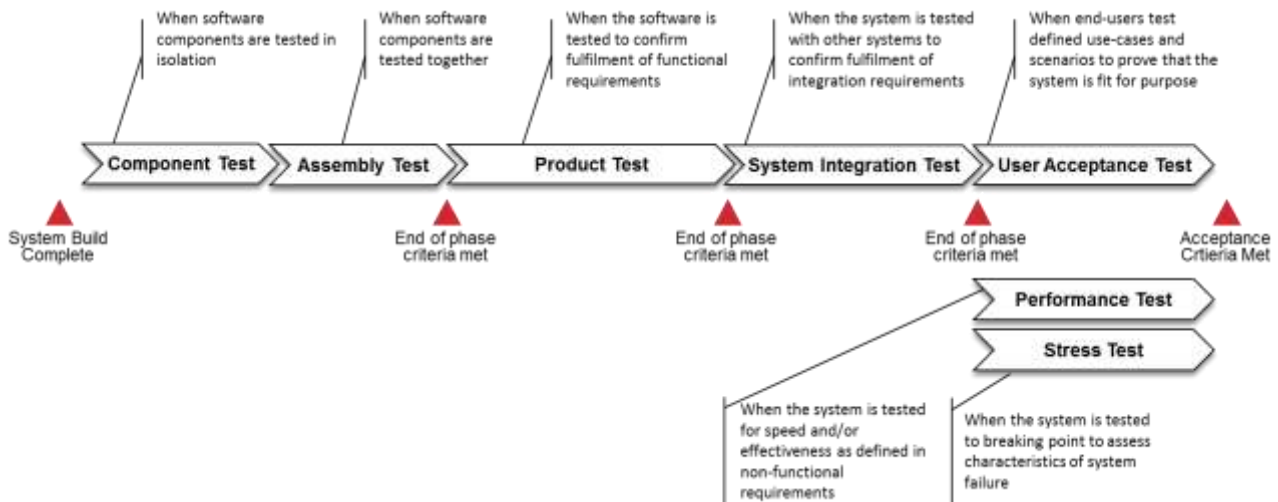
Steps

1. Define the testing approach and plan by completing the Testing Approach Template, considering:
 - What types of testing need to be completed?
 - How will each test phase be contained?
 - How will defects been managed and resolved?
 - What is the acceptance criteria?
 - What test environments are required?
 - Which project actor is responsible for each test type/phase?
2. Identify the required team to implement the testing approach; onboard these resources onto the CRVS Digitisation Team and ensure that they understand the scope and objectives of the CRVS Digitisation Project.
3. Define a testing plan in consultation with the developers. The plan below demonstrates the phased manner in which testing should be conducted, ensuring that clear stage gates are defined to enforce phase containment and mitigate the risk of the passing on of bugs from one test phase to the next.

TIP

Testing Top Tips

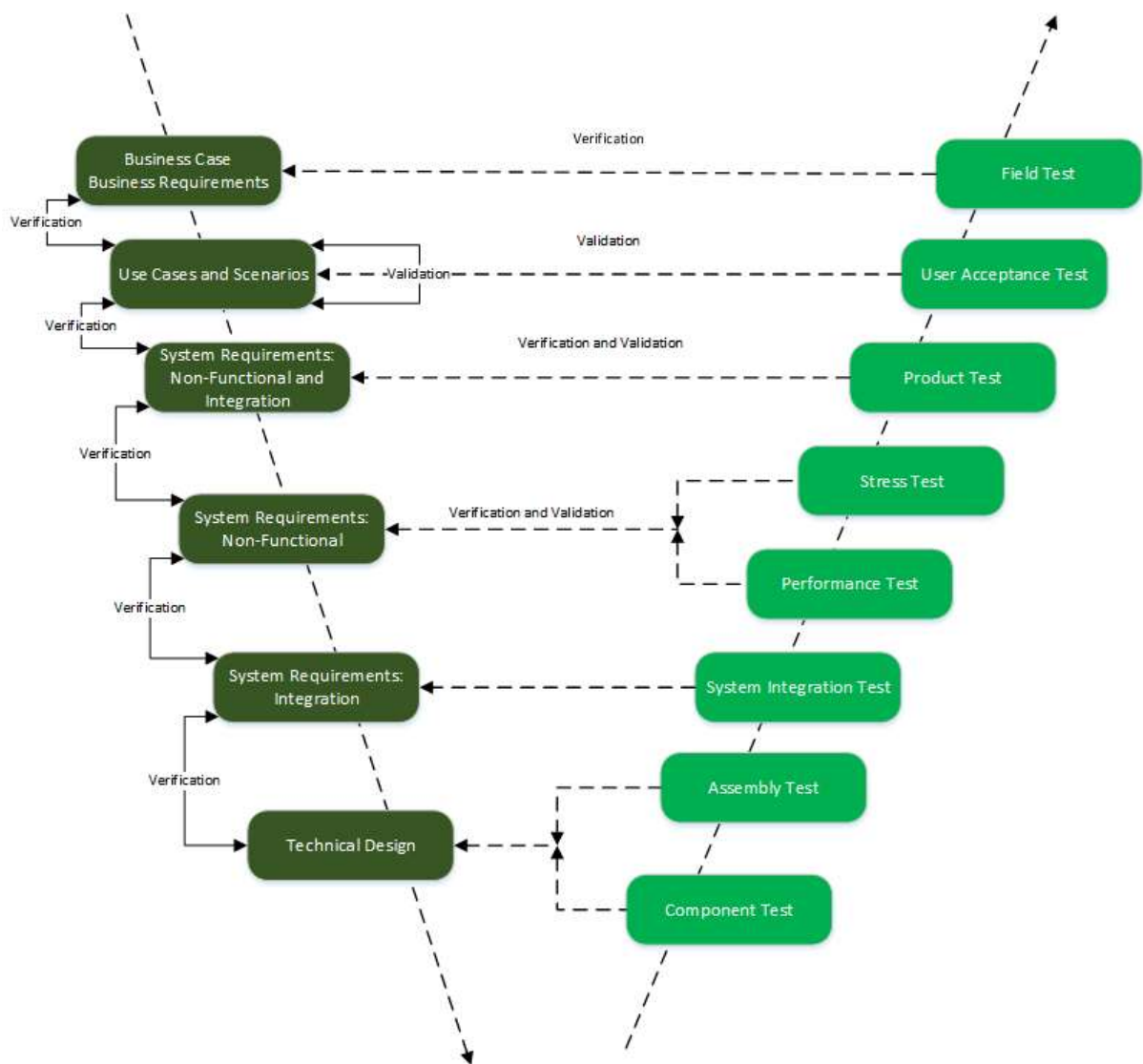
1. **Understand your test results:** spend time to understand the root cause of test “fails” – this will lead you to the solution to the problem.
2. **Enforce strict phase containment:** Phase containment is the finding and removing of bugs/defects within the phase in which they were discovered. By containing the faults in one phase of software development the bug/defect cannot affect later phases.
3. **Increase test coverage** by breaking each test case into individual units: this will allow you to test different aspects of the component e.g. security, user experience, functional testing etc.
4. **Performance testing is critical:** without it, the system could fulfil all functional requirements but operate at an unacceptable speed.
5. **Go beyond requirements testing:** Test the system for what it is not supposed to do as well as what it is supposed to do.
6. **Keep developers away from the test environment,** this reduces the likelihood that they will omit important code/configuration changes from system documentation.
7. **Write clear and descriptive bug reports:** these should include symptoms of the bug, the effects and all possible solutions.



High-level testing plan: enforcing phase containment

The V Model: Traceable Testing

The V-Model is a software development process that ensures that each stage of testing is contained and directly traceable to defined requirements. If the test does not fulfil all documented requirements and design principles, you should not progress to the next phase of testing. The V-model is a useful approach to adopt to ensure that the digital CRVS system fulfils all business, user and technical needs.



The V Model: Traceable Testing

Skills Required

- Project Manager
- Test Lead
- Solution Architect
- Business Analyst

Outputs

- Testing Approach
- Testing Plan

Templates

- Testing Approach and Plan Template

Implementation Planning Seven: Define the Operations Approach and Plan

Overview

During the Operations & Maintenance phase, the fully tested and accepted system is released into the full-scale production environment for sustained use with operational and maintenance support. This activity focuses on planning for the transition from the implementation phase to normal operational use and handover to the Operations and Maintenance Team. The Operations and Maintenance Plan should define the tasks, activities, and parties responsible for carrying them out, to ensure that the live system is fully functional and is performing as expected.

Steps

1. Define your operations and maintenance approach by answering the below questions:

- What is the handover process to the operations and maintenance team following formal acceptance of the system?
- How will outstanding issues be resolved where completion criteria has not been fully met at the time of handover? How will this be formalised?
- What system monitoring is required, including system performance and security monitoring tools and procedures?
- How will staff performance be monitored and reported on?
- What support will be provided for end-users, technical and systems administration staff? Will there be help desk infrastructure, staff and call-in procedures? What is the escalation process?
- How will data be curated and managed?
- How will the software be managed and by whom? What is the process for feature and change requests? How will software upgrades be managed e.g. vendor releases or off-the-shelf applications software upgrades?
- What is your business continuity plan, including disaster recovery and backup procedures?
- Who will develop SOPs on how to use and manage the system and how will these SOPs be managed and enforced?
- Who will update system and user documentation and how often?
- What Service Level Agreements need to be in place, considering service needs, roles and responsibilities, service level expectations, escalation levels and actions, service hours and contact methods, and performance guarantees?
- How will supplies be acquired and stored e.g., paper, forms?

TIP

Top Tips for a Business Continuity Plan

1. **Develop a** formal policy with the authority and guidance necessary to develop an effective plan.
2. **Conduct the business impact analysis (BIA).** The business impact analysis helps to identify and prioritize critical CRVS systems and components.
3. **Identify preventive controls.** These are measures that reduce the effects of system disruptions and can increase system availability and reduce costs.
4. **Develop recovery strategies.** Thorough recovery strategies ensure that the system can be recovered quickly and effectively following a disruption.
5. **Develop an IT contingency plan.** The contingency plan should contain detailed guidance and procedures for restoring a damaged system.
6. **Plan testing, training and exercising.** Testing the plan identifies planning gaps, whereas training prepares recovery personnel for plan activation.

- What refresher training will be provided to end-users and administrators? How will this training be delivered/accessed?
 - Who is responsible for training and curriculum development?
2. Identify the required team to implement the operations and maintenance approach, with an identified person responsible for managing the handover during the transition period. On-board these resources onto the CRVS Digitisation Team and ensure that they understand the scope and objectives of the CRVS Digitisation Project.
 2. Before handing over to the operations and maintenance team, a detailed operations and maintenance plan needs to be defined. Use the Operations and Maintenance Plan Template to complete this activity.

Skills Required

- Civil Registration Expert
- Government IT Expert
- Project Manager
- Operations and Maintenance Manager

Outputs

- Operations and Maintenance Plan

Templates

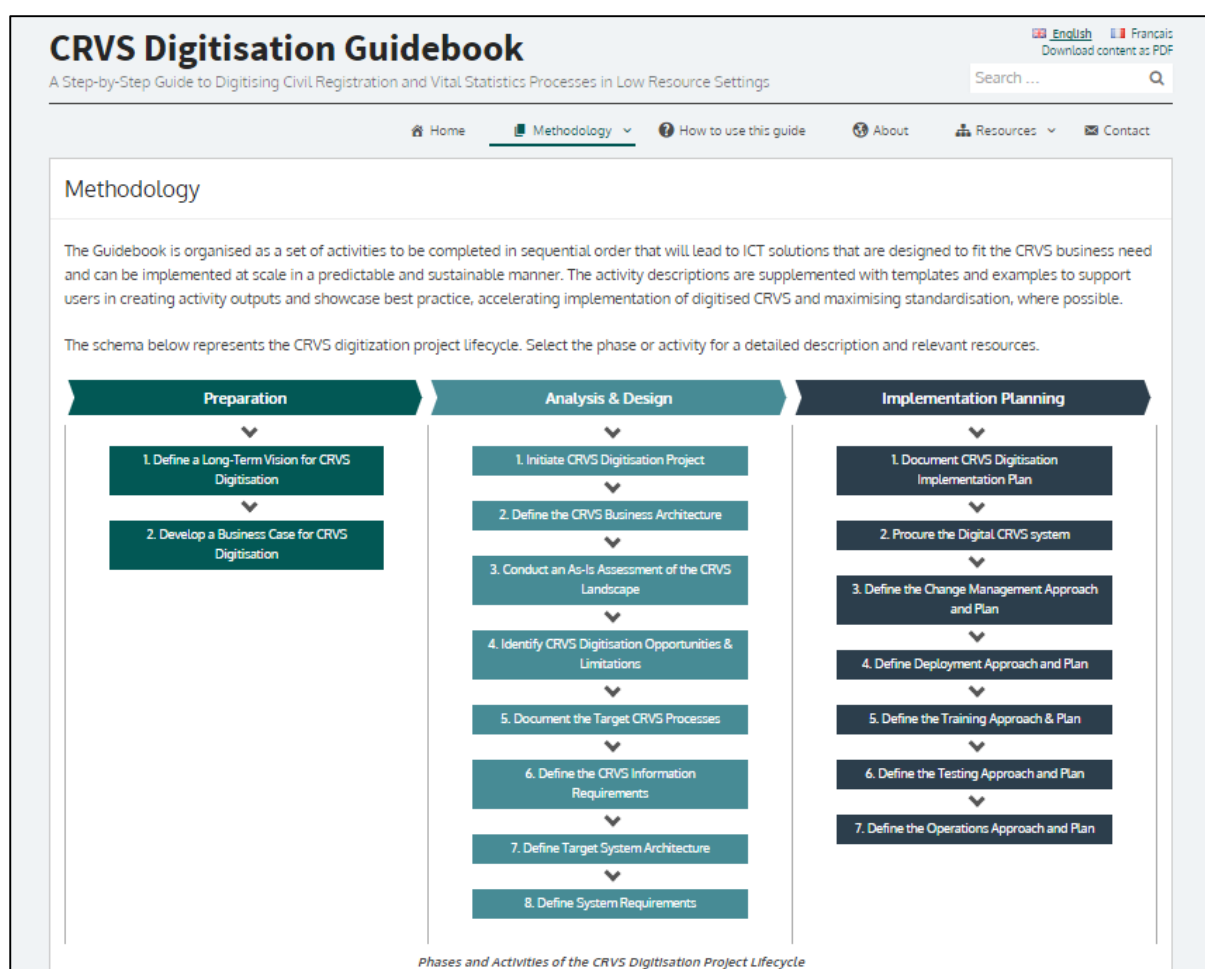
- Operations and Maintenance Plan Template

How to use this guide

The CRVS Digitisation Guidebook is designed to lead you through a logical sequence of Activities to implement a comprehensive digitised CRVS system. Organised into three Phases - Preparation, Analysis and Design, Implementation - the Activities contain a set of descriptive steps, supplemented with supporting Toolbox features.

A graphical representation of the Phases and Activities enables you to navigate directly to a specific activity activity or follow a logical process by following the ‘next’ button at the top and bottom of each page.

Text that is underlined is linked to a feature in the toolbox.



Alternatively you can follow a logical process by following the “next” button at the top and bottom of each page.

CRVS Digitisation Guidebook
 A Step-by-Step Guide to Digitising Civil Registration and Vital Statistics Processes in Low Resource Settings

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Preparation

1. Define a Long-Term Vision for CRVS Digitisation

2. Develop a Business Case for CRVS Digitisation

Glossary Search: Search ...

Index | Skills Required | Outputs | Guides

Overview
 The long-term vision for CRVS digitisation sets out a desired future state for CRVS that can specifically be achieved through the use of digital technologies. Aligned with the CRVS Strategic Plan, the long-term vision will be based on high-level needs and will set the direction for the CRVS digitisation project.

Steps:

- 1 Review existing strategy and planning documents, where available, as input for the development of the long-term vision for CRVS digitisation, for example:
 - CRVS Comprehensive Assessment
 - CRVS Strategic Plan (mandatory before beginning the digitisation process)
 - eGovernment Strategy
 - eHealth Strategy

The Ministerial Statement of the Second Conference of African Ministers Responsible for Civil Registration, Durban 2012, made a commitment to "develop costed national plans of action on CRVS that reflect individual country priorities based on comprehensive assessments"

Text that is underlined is hyperlinked to an Asset in the Toolbox.

Civil Registration Expert
 Government CRVS Stakeholders
 Business Analyst

Outputs
 CRVS Business Architecture
 Business Process Model Diagrams

Guides
 Business Process Modelling Guide

Templates
 CRVS Business Architecture Template

Examples
 Kenya CRVS Business Architecture Example
 Kenya Birth Registration As-is Process

Steps:

- 1 Using the CRVS Business Architecture Template, document your country's current CRVS Business Architecture, including all the components listed below:

CRVS Business Context	CRVS Programmes
CRVS Organisational Context	CRVS Services
CRVS Legal & Policy Foundations	CRVS Processes
CRVS Business Requirements	
CRVS Business Domain	

- Ensure that business processes documented include primary (core), support and management processes.
- Refer to the Country CRVS Business Architecture Examples in the Toolbox to see how other countries have completed this activity.

Selecting a specific activity box takes you directly to a page with details of the activity. These include an overview of the activity, steps required to complete the activity, skills required, guides, templates and examples.

Toolbox Assets are hyperlinked into the sidebar of the activity pages and can be used to identify and download assets directly.

The complete Toolbox and Glossary of Terms sections can be accessed from the Resources dropdown from the main menu.



Opening the Toolbox allows the user to navigate through the complete list of assets and the associated activities.

The Sidebar has the following Sections:

- **Index:** displays a list of all the phases and activities hyperlinked to the relevant section in the methodology.
- **Skills Required:** lists the skills required to complete the activity and links the user to a high-level job description of this role. These skills should be used by those responsible for delivering the digitisation project to effectively resource the activity.
- **Outputs:** provides a list of material outputs that will be created if the activity is fully completed. *NB. These outputs are often used in subsequent activities so you should check that these have been completed before moving on to the next activity.*
- **Guides:** additional support and guidance documentation for the activity e.g. how to document business process models effectively. The Guides included provide deeper insight into some key activity areas and will support thorough completion of the activity.
- **Templates:** a range of templates that can be used to guide the development of outputs of the activity. Click on the hyperlink and download a template to support your completion of the activity content.
- **Examples:** a range of available examples of activity outputs that have been provided by the Guidebook's Country Expert group (and others). These examples bring to life real-world digitisation outputs to demonstrate what you might create and in order for you to learn from others doing the same thing.



In each activity you will see dark grey boxes with different icons at the top. These boxes call out key tips, definitions or notes.

- The **notepad icon with text** represents a **definition box** – explaining a term that is used in the content of the activity.



- The **paper icon** represents a **note box** – providing information important for the user to be aware of.



- The **lightbulb icon** represents a **tip box** – providing the user with useful advice and guidance on how to complete the activity effectively.



[

The CRVS Digitisation Guidebook remains a living resource that will continue to evolve and expand over time. To request updates or the inclusion of additional assets, please contact the APAI-CRVS Secretariat via [Contact](#).

About the CRVS Digitisation Guidebook

This CRVS Digitisation Guidebook was commissioned by the African Development Bank for the African Programme for the Accelerated Improvement of Civil Registration and Vital Statistics (APAI-CRVS) and was developed jointly by Plan International and Jembi Health Systems.

The Guidebook is intended to be a living and collaborative resource that can be extended over time, as countries contribute re-usable assets and case studies to the Guidebook based on their experiences.

To support the development of the Guidebook, the APAI-CRVS formed a Taskforce consisting of:

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Resources

Resources include the following:

- Abbreviations
- Glossary
- Bibliography
- Toolbox with assets
- Skills Required

Abbreviations

Abbreviation	Description
CRVS	Civil Registration and Vital Statistics
DBMS	Database Management System
HMN	Health Metrics Network
ICT	Information and Communication Technology
IT	Information Technology
NGO	Nongovernmental Organization
PID	Project Initiation Document
RACI	Responsible, Accountable, Consulted, Informed
RDBMS	Relational Database Management System
RFP	Request for Proposal
SDLC	Software Development Life Cycle
SLA	Service Level Agreement
SME	Subject Matter Expert
SOP	Standard Operating Procedure
UAT	User Acceptance Test
UNICEF	United Nations Children's Fund
WHO	World Health Organization

Glossary

Term	Description
Activity	A generic term for work that is performed as part of a business process. The general types of activities used in business process modelling are tasks and sub processes.
Actor	An Actor is any external entity that interacts with a system under consideration, e.g. a human in a specific role or another system or component
Architecture Principle	Architecture principles define the underlying general rules and guidelines for the use and deployment of all IT resources and assets across the enterprise. They reflect a level of consensus among the various elements of the enterprise, and form the basis for making future IT decisions.
Asset (Artifact)	The general term for any work product including text documents, diagrams, models, database schema, web graphics, software code, and so on.
Automation	Replacing manual processes with processes managed by ICT solutions, reducing manual effort.
Best practice	A technique or methodology that, through experience and research, has shown to reliably lead to a desired result.
Business process	A set of related work tasks or activities designed to produce a specific desired programmatic (business) result. The process can involve multiple parties internal or external to the organization and frequently cuts across organization boundaries.
Business process analysis	The effort to understand an organization and its purpose while identifying the activities, participants, and information flows that enable the organization to do its work. The output of the business process analysis phase is a model of the business processes consisting of a set of diagrams and textual descriptions to be used for design or redesign of business processes.
Business process redesign	The effort to improve the performance of an organization's business processes to achieve specific goals, including restructuring tasks and workflow to be more effective and more efficient.
Business Requirement	Business requirements define what a business needs in order to complete its core functions.
Business rules	A set of statements that define or constrain some aspect of the business process. Business rules are intended to assert business structure or to control or influence the behaviour of the business.
Data Dictionary	Data Dictionary is a set of information describing the contents, format, and structure of a database and the relationship between its elements, used to control access to and manipulation of the database.

Deployment	Deployment refers to all of the different processes involved in getting new computer hardware or software running effectively in its environment according to the specifications, including installation, configuration, operations, testing and maintenance.
Enterprise Architecture	Enterprise architecture can be defined as the practice of analysing and documenting an enterprise in its current and future states from a strategy, business and technology perspective, where the enterprise refers to any collection of organisations with a common goal.
Entity	A person or a group of people who performs one or more tasks involved in a process. The entities are the participants in the process. Entities are represented in context diagrams.
Entity-Relationship Diagram	An Entity-relationship diagram (ERD) is a graphical representation of an information system that shows the relationship between people, objects, places, concepts or events within that system.
Framework	A defined support structure in which other components can be organized and developed. A logical structure for classifying and organizing complex information. A system of rules, ideas, or principles that provides a unified view of the needs and functionality of a particular service.
Goal	The major goal that the business process supports. The goal is the end state to be achieved by the work of the agency and should be defined in terms of the benefits provided to the community/population or individual/client.
Information system	An information system is software that helps you organise and analyse data making it possible to answer questions and solve problems relevant to the mission of an organisation.
Input(s)	Information received by the business process from external sources. Inputs are not generated within the process.
Logical design	Logical design describes textually and graphically how an information system must be structured to support the requirements. Logical design is the final step in the process prior to physical design, and the products provide guidelines from which the programmer can work.
Logical entities	A logical entity within a logical data model is any person, place, thing, event, or concept about which information is kept.
Metadata	Metadata is “data about data”. To relate data from multiple sources, it is essential to develop common definitions and understand the characteristics of each data element. The tool for achieving this is the metadata dictionary. It covers definitions of data elements/variables, their use in indicators, data-collection method, time period of data-collection, analysis techniques used, estimation methods and possible data biases.

Objective	A concrete statement describing what the business process seeks to achieve. The objective should be specific to the process such that one can evaluate the process or reengineer the process and understand how the process is performing towards achieving the specific objective. A well-worded objective will be SMART (Specific, Measurable, Attainable/Achievable, Realistic and Time-bound).
Outcome	Outcome. The resulting transaction of a business process that indicates the objective has been met. Producing or delivering the outcome satisfies the stakeholder of the first event that triggered the business process. Often, measures can be associated with the outcome (e.g., how much, how often, decrease in incidents, etc.). An outcome can be, but is not necessarily, an output of the process.
Output	Information transferred out from a process. The information may have been the resulting transformation of an input, or it may have been information created within the business process.
Project Charter	A project charter is a statement of the scope, objectives and participants in a project and is a critical document to ensure that all those involved in the project are aware of its purpose and objectives.
RACI	A method for defining roles and responsibilities during an organizational change process. Responsible (Who is/will be doing this task? Who is assigned to work on this task?) Accountable (Who's head will roll if this goes wrong? Who has the authority to take decision?) Consulted (Anyone who can tell me more about this task? Any stakeholders already identified?) Informed (Anyone whose work depends on this task? Who has to be kept updated about the progress)
Result	A task output that may be used in one of three ways: (a) as an input to the next sequential step, (b) as an input to a downstream step within a task series; or (c) as the achievement of an organizational objective.
Requirements	The specific things the information system must do to make a process efficient and achieve its purpose.
Requirements definition	The purpose of a requirements definition is to refine our understanding of the workflow and then to define database outputs needed to support that work. The requirements definition serves to specifically define the functionality to be supported. In addition, the physical constraints are examined and the specific project scope determined. The requirements definition answers the question, "How would an information system support the performance of activity X?"
Requirements development methodology	A logical, step-wise approach to think through the tasks that are performed to meet the specific objectives (analyse business processes), rethink the tasks to increase effectiveness and efficiency (redesign business processes), and describe what the information system must do to support those tasks (define system requirements).
Stakeholder	Stakeholder. A person, group, or business unit that has a share or an interest in a particular activity or set of activities.

Sub-process	A process that is included within another business process.
Systems Analysis	Systems Analysis can be defined as a set of activities aimed at understanding and describing the components and organisation making up an existing system to meet a goal.
Systems Design	Systems Design can be defined as a set of activities aimed at designing the components and organisation of a system to meet a desired goal and possibly based on an existing system.
Task	A definable piece of “work” that can be done at one time; i.e., what happens between the “in-box” and the “out-box” on someone’s desk. A business process is made up of a series of work tasks. The term task is often interchangeable with activity.
Use case	A description of system behaviour in terms of sequences of actions. A use case should yield an observable result of value to an actor. A use case can be described in a wide spectrum of detail from very brief to very extensive, technical, and detailed. It may also contain a set of alternate flows of events related to producing the “observable result of value.”
User Centred Design	User centred design is the process and design philosophy focused on placing input from user research as the focal point of design decisions.

Bibliography

1. ITU, Jul. 2013. ICT for improving information and accountability for women's and children's health. Tech. rep. URL <https://www.itu.int/en/ITU-D/ICT-Applications/Documents/CoIA%20Background%20ICT4RMNCH.pdf>
2. Mikkelsen, L., 2012. Strategic planning to strengthen civil registration and vital statistics systems: Guidance for using findings from a comprehensive assessment. Tech. rep., University of Queensland. URL <http://www.uq.edu.au/hishub/docs/WP23/HISHUB-WP%2023-02%20OCT.pdf>
3. Namibia Statistics Agency, Oct. 2014. Comprehensive assessment of the civil registration and vital statistics system in Namibia. Tech. rep.
4. Namibia Statistics Agency, Feb. 2015. Strategic plan 2015/16 - 2020/21 for the civil registration and vital statistics system in Namibia. Tech. rep.
5. Guidelines for CRVS digitisation concept note on behalf of APAI-CRVS, P. I., Jun. 2013.. Tech. rep.
6. IDPM, 2008. Success and Failure in eGov Projects. <http://www.egov4dev.org/success/>
7. Republic of Namibia Office of the Prime Minister, Apr. 2014. e-Government strategic action plan for the public service of Namibia (2014-2018). Tech. rep., Windhoek.
8. UNECA, Apr. 2013. Improving National Civil Registration and Vital Statistics Systems in Africa. Guidelines for Conducting Comprehensive Assessments of National Systems.
9. UNICEF, 2013. A passport to protection. a guide to birth registration programming. Tech. rep. URL http://www.unicef.org/protection/files/UNICEF_Birth_Registration_Handbook.pdf
10. UNICEF, IDB, 2015. Toward universal birth registration. a systemic approach to the application of ICT. Tech. rep. URL http://www.unicef.org/protection/files/ICS_CoPUB_Toward_Universal_Birth_Registration.pdf
11. United Nations Department of Economic and Social Affairs Statistics Division, 2001. Handbook on census management for population and housing censuses. Studies in Methods, Series F, No. 83/Rev.1, 1-261. URL http://unstats.un.org/unsd/publication/SeriesF/SeriesF_83rev1e.pdf
12. UNSD, 1998a. Handbook on civil registration and vital statistics systems computerization. Tech. Rep. No. 73, Department of Economic and Social Affairs, Statistics Division, ST/ESA/STAT/SER.F/73.
13. UNSD, 1998b. Handbook on civil registration and vital statistics systems. developing information, education and communication. Vol. Series F of Handbooks on Civil Registration and Vital Statistics Systems. New York.
14. UNSD, 1998c. Handbook on civil registration and vital statistics systems. management, operation and maintenance. Tech. Rep. No. 72.
15. UNSD, 1998d. Handbook on civil registration and vital statistics systems. policies and protocols for the release and archiving of individual records. Vol. Series F. pp. 1–24.
16. UNSD, 1998e. Handbook on civil registration and Vital statistics systems preparation of a legal framework. Tech. Rep. No. 71, Department of Economic and Social Affairs, Statistics Division, ST/ESA/STAT/SER.F.
17. UNSD, 2014. Principles and Recommendations for a Vital Statistics System, Revision 3. New York.

18. WHO, 2010. Improving the quality and use of birth, death and cause-of-death information: guidance for a standards-based review of country practices. Tech. rep.
19. WHO, 2012. Strengthening civil registration and vital statistics for births, deaths and causes of death. resource kit, 1–238.
20. WHO, HMN, 2013a. Civil registration and vital statistics 2013: challenges, best practice and design principles for modern systems. Tech. rep.
21. WHO, HMN, 2013b. Systematic review of eCRVS and mCRVS interventions in low and middle income countries. Tech. rep.
22. WHO, Optimize, PATH, 2013. Planning an Information Systems Project: A toolkit for Public Health Managers.
23. WHO, World Bank, May 2014. Global civil registration and vital statistics. scaling up investment plan 2015–2024. Tech. rep.
24. World Bank Group, Jun. 2014. Digital identity toolkit. a guide for stakeholders in Africa. Tech. rep. URL <http://documents.worldbank.org/curated/en/2014/06/20272197/digital-identity-toolkit-guide-stakeholders-africa>

Toolbox with Assets

Phase and Step	Asset Name	Type	Description
Preparation			
1. Define a Long-Term Vision for CRVS Digitisation	Botswana CRVS Digitisation Vision	Example	High-level CRVS Digitisation Vision from Botswana
	Zambia National Strategic Action Plan for CRVS	Example	Detailed strategic action plan from Zambia
	Tanzania To-Be Value Chain	Example	Expected target value chain of CRVS Digitisation, including inputs, processes, outputs and outcomes
2. Develop a Business Case For CRVS Digitisation	CRVS Business Case Template	Template	Complete to define your business case for the Analysis & Design Phase. This includes benefits, timeframes and costs of completing activities.
Analysis & Design			
1. Initiate CRVS Digitisation Project	CRVS Project Initiation Document (PID) Template	Template	Complete to comprehensively plan and establish a successful CRVS Digitisation project
2. Define the CRVS Business Architecture	Business Process Modelling Guide	Guide	Guidance on how to effectively model your CRVS business processes
	CRVS Business Architecture Template	Template	Complete to define your organisations's business architecture; this helps frame the business functions and needs that CRVS digitisation must support
	Kenya CRVS Business Architecture Example	Example	Kenya's CRVS Business Architecture
	Kenya Birth Registration As-Is Process	Example	As-Is Birth Registration Process from Kenya
3. Conduct an As-Is Assessment of the CRVS Landscape	Kenya AS-IS System Architecture Assessment Map	Example	As-Is System Architecture from Kenya, annotated with system analysis findings
	Kenya Birth Registration As-Is Process Assessment	Example	As-Is Birth Registration Process from Kenya, annotated with process analysis findings
4. Identify CRVS Digitisation Opportunities & Limitations			
5. Document the Target CRVS Processes	Business Process Modelling Guide	Guide	Guidance on how to effectively model your CRVS business processes
	Kenya TO-BE Birth Registration Process	Example	Future state birth registration process from Kenya
	Kenya TO-BE Death Registration Process	Example	Future state death registration process from Kenya
6. Define the CRVS Information Requirements	Generic CRVS Information Modelling Guide	Guide	Guidance on how to effectively model your CRVS Information needs
	CRVS Data Dictionary Guide	Guide	Guidance on how to effectively document your CRVS Data Dictionary
	Data Dictionary Template	Template	Complete to document your CRVS Data Dictionary

7. Define Target System Architecture	Future State Architecture Guide	Guide	Guidance on what different architectural options exist for your digital CRVS system and how they work
	Kenya Future State Architecture	Example	Future state architecture from Kenya; developed in response to findings from system and process analysis
	Namibia Future State Architecture	Example	Future state architecture from Namibia; demonstrating an interoperable architecture
8. Define System Requirements	Change Control Guide	Guide	Guidance on how to develop an effective change management process
	Use Case Template	Template	Complete to effectively document use cases that reflect required system user interactions
	User Personas Template	Template	Complete to effectively document user personas that will capture user needs that should be reflected in subsequently defined system requirements
	CRVS System Requirements Template	Template	Complete to effectively document your CRVS system requirements. Included are a sample set of both functional and non-functional requirements
	Change Request Log Template	Template	Use throughout your project to standardise the way in which change requests are submitted
	Country CRVS System Requirements Examples	Example	Examples of different country's CRVS system requirements
Implementation Planning			
1. Document CRVS Digitisation Implementation Plan	CRVS Digitisation Implementation Plan Template	Template	Complete, edit and update to effectively plan the Implementation Phase of your CRVS Digitisation Project
2. Procure the Digital CRVS system	CRVS RFP Template	Template	Complete, edit and update to document requirements for the procurement of your CRVS system (and development team) as appropriate
3. Define the Change Management Approach and Plan	CRVS Change Management Approach Template	Template	Complete to effectively plan your change management activities for the implementation phase
4. Define Deployment Approach and Plan	Deployment Approach Template	Template	Complete to effectively plan your deployment activities for the implementation phase
	Deployment Plan Template	Template	Complete, edit and update to document your deployment plan
5. Define the Training Approach & Plan	Training Approach Template	Template	Complete to effectively plan your training activities for the implementation phase
6. Define the Testing Approach and Plan	Testing Approach Template	Template	Complete to effectively plan your testing activities for the implementation phase
7. Define the Operations Approach and Plan	Operations and Maintenance Plan Template	Template	Complete to effectively plan for handover from the Implementation Team to the permanent Business As Usual Operations & Maintenance Team and for Business as Usual Operations

Skills Required

Skills Required	Description
Business Analyst	<p>The Business Analyst (BA) is able to analyse the organisation and business domain (i.e. CRVS) and document its processes and systems and assess how technology systems can support the business need. The BA has the responsibility to ensure that ICT solutions address business goals and objectives (e.g. reduction in costs, increased efficiencies) by defining the business and functional requirements for the system.</p> <p><i>Qualifications, skills and experience:</i></p> <p>Degree in business or information technology, or similar undergraduate degree</p> <ul style="list-style-type: none"> o Business architecture o Business process modelling notation (UML, Structured, BPMN) o Systems and data modelling to a logical level, user interface designs o Functional and non-functional requirements o Software development lifecycle o Communications skills (oral and written) o Facilitation skills
Change Management Specialist	<p>The Change Management Specialist plays a key role in ensuring projects (change initiatives) meet objectives on time and on budget by increasing employee adoption and usage. This person focusses on the people side of change – including changes to business processes, systems and technology, job roles and organization structures. The primary responsibility is creating and implementing change management strategies and plans that maximize employee adoption and usage and minimize resistance. The Change Management Specialist works to drive faster adoption, higher ultimate utilization and greater proficiency of the changes that impact employees in the organization to increase benefit realization, value creation, Return on Investment and the achievement of results and outcomes.</p>
Civil Registration Subject Matter Expert	<p>The Civil Registration Expert is a CRVS expert who has an extensive, in-depth knowledge and experience of the overall national civil registration process, and understands the legal, operational and human resource aspects. The Civil Registration Expert applies this expert knowledge to all steps in the CRVS digitisation process, checking that the other non-CRVS specialist working on the team understand the specialization necessary to make solutions appropriate to the domain of CRVS.</p>

Deployment Lead	<p>Main responsibility is to coordinate and facilitate the deployment of the software into the production environment. Other responsibilities include:</p> <ul style="list-style-type: none"> • Manage a support team that performs most of the day-to-day work • Assist the Project Manager and the development team members in planning each release • Ensure that the architecture and infrastructure on which the application will be deployed are robust and stable • Ensure that a detailed deployment plan has been documented along with a backout plan should anything go wrong during deployment • Validate that the product has been correctly packaged before deployment and ensure that all release controls have been satisfied • Work with the implementation and operations staff to deploy the software successfully • Conduct a release review
Developer	<p>Developers are technical experts responsible for the design, development and implementation of technical software, hardware and networking components of the digital CRVS system. Developers have different sub-specialisations eg software developers, application developers, system developers, testers etc., so will have different responsibilities in the development process.</p>
Finance Manager	<p>The Finance Manager is responsible for the integrity of project cost models, analysing project progress and results from a costing view, providing financial decision support, identifying and communicating financial risk, managing donor/government funding.</p> <p><i>Qualifications, skills and experience:</i></p> <ul style="list-style-type: none"> • Degree with qualifications in accountancy, statistics, economics, mathematics, management or business subjects. • Professional qualifications/certification from a recognised national or international accountancy bodies • Good knowledge of financial regulations, legislation and reporting requirements • Strong math, management and communications skills
Government IT Subject Matter Expert	<p>The government IT Expert is a senior government official representative who has deep technical knowledge of the country's IT systems in the government of the country in which the CRVS system(s) will be implemented. This should include in-depth technical knowledge of the systems that directly support CRVS as well as systems in other departments and ministries, including the ministries of interior, home affairs, justice and health (or equivalent). The Government IT Expert should be well versed in the country's IT strategy and related initiatives e.g. eGovernment strategy.</p>

Government CRVS Stakeholders	Technical and Non-Technical representatives from various Departments and Ministries with a stake and/or interest in CRVS and/or IT strategy and systems. Stakeholders are required at various stages throughout the Digitisation Project and represent interests from the National to lowest administrative levels e.g. senior decision-makers are needed as part of the highest decision-making team and SMEs and IT specialists are needed at phases when integration with systems within their departments are designed and implemented.
Project Sponsor	The Project Sponsor is usually a senior government representative who directly commissions the CRVS digitisation project, reports to the director/executive and coordinates national level CRVS activities including the steering committee, and acts as a vocal and visible champion, legitimising the project's goals and objectives. The Sponsor is also responsible for setting project priorities, securing project funding; allocating project resources; final approval of all deliverables; approving the contracts (if applicable) and national level directives and communications.
Legal Expert	<p>The Legal Expert is responsible for all legal aspects of the Digitisation Project, including the development of an overall legal strategy for CRVS digitisation, identification of legislative reform required to support digital CRVS systems and processes, identification and communication of legal risk, and coordination with other legal experts supporting the National CRVS strategy.</p> <p><i>Qualifications, skills and experience:</i></p> <ul style="list-style-type: none"> • Bachelor's degree in pre-law or similar field, followed by completion of a professional qualification at national level • Knowledge of the legal frameworks related to CRVS • Excellent communication and interpersonal skills • Knowledge of procurement rules of government sector clients
Operations and Maintenance Manager	<p>The Operations and Maintenance Manager (OMM) (sometimes referred to simply as the IT Manager) is generally responsible for ensuring that the the digital CRVS systems are functioning effectively and efficiently and with an adequate level of security and data protection. The OMM Manager is usually a government official who reports to senior management and manages a team of professionals in specific IT areas, such as software development and implementation, hardware implementation and maintenance and network installation, monitoring and management. Typical responsibilities include the following:</p> <ul style="list-style-type: none"> • Installing and maintaining computer hardware and software as well as local and wide area networks • Managing peripheral devices, including general and specialist printers and paper as well as remote and mobile devices

	<ul style="list-style-type: none"> • Maintain a national Data Centre including responsibility for all digital data, backups, offline storage and recovery • Ensuring an adequate level of fault tolerance, including disaster planning, management and recovery • Drafting and implementing Standard Operating Procedures (SOPs) • Maintaining interfaces and gateways to other systems, including databases in other government departments, web and citizen portals as well as interoperability and data integration between systems • Maintaining updated antivirus software and protection • Managing and maintaining all software packages, licenses and version control, including installation and configuration • Management and maintenance of a Help Desk (where appropriate) and oversight of troubleshooting • Participate in strategic planning of new IT acquisitions and implementations • Lead operational planning and implementation activities • Budgeting, procurement, purchasing and other resourcing
Procurement Manager	<p>The Procurement Manager ensures that the equipment and services to build, implement and maintain the CRVS digitised system are defined and agreed. This role will also take the lead in developing the RFP and managing the RFP evaluation and selection process. Following the award, this role will ensure that all purchases from selected are delivered according to agreed terms and conditions.</p>
Project Manager	<p>The Project Manager (PM) has the responsibility to ensure the effective and efficient day to day planning and implementation of the project under the overall guidance and supervision of the Project Steering Committee. The PM will ensure the functioning of the project from beginning to the end including project inception activities, planning and reporting, and implementation of project activities, project reviews and project closure.</p> <p><i>Qualifications, skills and experience:</i></p> <ul style="list-style-type: none"> o Degree or college diploma/certificate in business or information technology, project management or other undergraduate degree o Knowledge of the CRVS domain highly advantageous o Knowledge of software development lifecycle (SDLC) o Good communications skills (oral and written) o Good interpersonal and consultative skills o Facilitation o Organizational skills

Solution Architect	<p>The Solution Architect is responsible for overall system design and the development of a system architecture based on functional and non-functional requirements documented by the Business and Systems Analyst. The design and architecture is then used by the rest of the development team to implement the solution.</p> <p><i>Qualifications, skills and experience:</i></p> <ul style="list-style-type: none"> • Bachelor's Degree in Computer Science, Information Systems • Approximately 5 years' experience in an Enterprise/Solution Architect role • Knowledge of the relevant Information Technology governance and legislative framework (such as COBIT, ITIL, TOGAF, SDLC, ASAP, SOA) • TOGAF certification • Good communications skills (oral and written) • Good interpersonal, consultative and facilitation skills
Systems Analyst	<p>The Systems Analyst is a technical resource who is responsible for assessing the suitability of information systems in relation to their intended outcomes and end-users. The Analyst closely examines the existing processes (business architecture), data systems (information architecture), software (application architecture) and IT infrastructure (technical architecture) with a view to identifying blockages in the systems and opportunities for improvement. The Systems Analyst may also individually, or as part of a team, design the system or improvements to the system. This Analyst often works with other analysts such as the Business Analyst who is more specifically tasked with analysing the system from a business perspective.</p> <p><i>Qualifications, skills and experience:</i></p> <ul style="list-style-type: none"> • Degree in computer science, computer information systems (CIS), business intelligence or similar undergraduate degree • Business process modelling notation (UML, Structured, BPMN) Systems and data modelling to a physical level • A working knowledge of programming skills such as: SQL, C++, Java, Visual Basic. • Development of technical specifications • Communications skills (oral and written) • Facilitation skills
Test Lead	<p>The Test Lead defines the test strategy and approach for the CRVS system, provides quality assurance policies and procedures, manages the testing team and is ultimately responsible for ensuring that the CRVS software system meets the business, functional and non-functional /quality requirements as specified and approved.</p>

Training Lead	The Training Lead is responsible for identifying training needs for the CRVS digitisation project and for designing and planning the training approach. This includes overseeing the production of training materials, managing the delivery of training programmes and monitoring and reviewing the progress of trainees.
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Contact

The CRVS Digitisation Guidebook is a living resource that will grow over time with increased implementation experience across the continent. The curators welcome contributions to the content of the Guidebook in the form of suggested corrections or requests for additional material. Additional assets and sample deliverables may also be shared where they may prove useful for other countries undertaking CRVS digitisation projects.

If you have any queries, suggestions or contributions, please contact the guidebook curators at curator@crvs-dgb.org or fill in the contact form.

CRVS DIGITALIZATION: BOTSWANA

BY


NEO C LEPANG

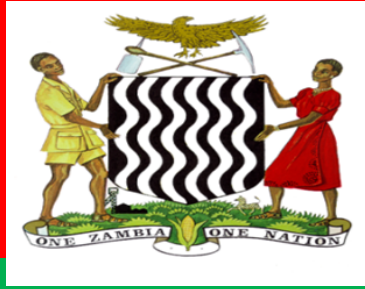
DIRECTOR DEPARTMENT OF CIVIL AND
NATIONAL REGISTRATION

MINISTRY OF LABOUR AND HOME
AFFAIRS

JANUARY 20, 2015 ADDIS ABABA

BOTSWANA'S VISION

- ✓ Fully Digitalized CRVS built on streamlined Business processes and effectively coordinated across agencies
 - ✓ Interoperable and linked CRVS systems
 - ✓ relevant digitalization legal framework and related ICT standards and protocols in place
 - ✓ CRVS capable of generating continuous, reliable and timely vital statistics data strategically positioning Botswana for the Post 2016 National Vision; Post 2015 Sustainable Development Goals
 - ✓ CRVS registration universality obtained through ICT leverage
 - ✓ Secure, reliable and robust People Hub for person identification and on-line authentication of person data for controlled and secure access to both private and public services.
 - ✓ On-line services allowing effective communication b2n G to C and C to G through Mobile Government.
- 



REPUBLIC OF ZAMBIA

NATIONAL STRATEGIC ACTION PLAN FOR REFORMING AND IMPROVING CIVIL REGISTRATION AND VITAL STATISTICS

**MINISTRY OF HOME AFFAIRS - DEPARTMENT OF NATIONAL REGISTRATION, PASSPORTS AND
CITIZENSHIP KUNDALILA HOUSE, DEDAN KIMATHI ROAD, LUSAKA**

**NATIONAL STRATEGIC ACTION PLAN FOR
REFORMING AND IMPROVING CIVIL
REGISTRATION AND VITAL STATISTICS**

IMPLEMENTATION PERIOD

2014 – 2019

LEAD AGENCY:

**NATIONAL REGISTRATION, PASSPORT AND
CITIZENSHIP**

STAKE HOLDERS:

CSO, MCDMCH, MoH, MCTA

Development Partners include UNICEF, UNFPA, UNHCR, UNDP, UNECA, CDC, USAID, WHO, PLAN International, World Vision and Global Fund

FOREWORD

Civil Registration is a major foundation for a legal system for establishing the rights and privileges of individuals in a country. On the other hand, where it is comprehensively maintained, it is the main source of vital statistics and essentially complements the censuses and periodic national level household surveys.

Vital Statistics are an essential input for the planning of human development therefore, making knowledge of the size and characteristics of a country's population on a timely basis a prerequisite to socioeconomic planning. It is important to underscore the fact that a population increases mainly by the addition of live births and decreases by the subtraction of deaths occurring in a population. This becomes crucial for estimating population changes and the structure of that population.

Information about live births occurring over a time period classified by various characteristics of women giving birth can help determine the dynamics of reproduction. Information on deaths classified by various characteristics of the deceased especially age and sex can equally be used in calculating life tables and estimating the probability of dying at various ages. The fertility and mortality can easily be derived from civil registration information.

However, the civil registration and vital statistics system remain underdeveloped in Zambia. An Internal assessment conducted by DNRPC (DNRPC) in 2012 revealed that birth and death registration is at less than 5% coverage.

Recognizing the invaluable contribution civil registration information can play in protecting rights of citizens and its linkages to socio-economic planning, the National Strategic Plan of Action (NSAP) to improve Civil Registration and Vital Statistics System (CRVS) was developed.

Hon. Dr. Ngosa Simbyakula, MP
Minister of Home Affairs

ACKNOWLEDGEMENTS

The Ministry of Home Affairs recognizes invaluable contributions from various stakeholders towards the preparation of this plan. The formulation of this plan involved participation of various stakeholders at different levels

The contributions of sectoral ministries such as the Ministry of Health, Ministry of Finance and National Planning through the Central Statistical Office, Ministry of Education, Ministry of Community Development Mother and Child Health, Ministry of Local Government and Housing, Ministry of Transport and Communications and Ministry of Chiefs and Traditional Affairs. Appreciation is further extended to Cooperating Partners namely: UNICEF, USAID, Zambia Institutional Reform Programme, UNFPA, UNDP and UNHCR for technical and financial support throughout the process of developing this National Action Plan aimed at Improving Civil Registration and Vital Statistics.

I would also like to specially recognize the efforts of the Civil Registration and Vital Statistics Task Team members for their contribution to the assessment process; and Mr. Martin Nyahoda-Principal Registrar of Births, Marriages and Deaths (DNRPC), Ms Brivine Sikapande - Principal Planner Health Systems Development (MCDMCH), Mr. Palver Sikanyiti-Senior Demographer (CSO), Mr. Peter Moyo-Principal Registrar (DNRPC) and Mr. Lisuba Kabanda Regional Passport and Citizenship Officer (DNRPC) for the tireless efforts that went into drafting this action plan.

Dr. Peter Mwaba
Permanent Secretary
Ministry of Home Affairs

LIST OF ACRONYMS

BDR	Birth and Death Registration
BPR	Business Process Re-engineering
CDC	Curriculum Development Centre
CRC	Convention on the Rights of a Child
CRVS	Civil Registration and Vital Statistics
CSO	Central Statistical Office
DDCC	District Development Coordinating Committees
DHS	Demographic Health Survey
DNRPC	Department of National Registration, Passport and Citizenship
ICD	International Classification of Diseases
ICT	Information and Communication Technology
INRIS	Integrated National Registration System
LCMS	Living Conditions Monitoring Survey
MCDMCH	Ministry of Community Development, Mother and Child Health
MDD	Management Development Division
MDG	Millennium Development Goals
MoH	Ministry of Health
MoHA	Ministry of Home Affairs
MoLGH	Ministry of Local Government and Housing
MoYS	Ministry of Youth and Sport
NSAP	National Strategic Action Plan
NGO	Non-Governmental Organization
NRC	National Registration Card
PDCC	Provincial Development Coordinating Committee
RSA	Republic of South Africa
RTSA	Road Transport and Safety Agency
SAVVY	Sample Vital Registration with Verbal Autopsy

SBS	Sexual Behavioral Survey
UNCRC	United Nations Convention on the Rights of the Child
UNICEF	United Nations International Children Education Fund
UNDP	United Nations Development Fund
UNFPA	United Nations Population Fund
UNHCR	United Nations High Commission for Refugees
USAID	United States Agency for International Development
VA	Verbal Autopsy
ZDHS	Zambia Demographic Health Survey
ZLDC	Zambia Law Development Commission
ZIRP	Zambia Integrated Reform Program

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1.0 CHAPTER ONE

1.1 Introduction

The United Nations defines Civil Registration as the continuous, permanent, compulsory and universal recording of the occurrence and characteristics of vital events pertaining to the population in accordance with legal requirements of each country. These vital events are live births, adoptions, legitimations, recognitions, deaths and foetal deaths, marriages, divorces and separations.

A vital statistics system is defined as a “process of compiling, processing, evaluating, presenting and disseminating civil registration information in statistical form”. The mandate to produce and disseminate these statistics in Zambia lies with the Central Statistical Office in the Ministry of Finance and National Planning

The Department of National Registration Passport and Citizenship under the Ministry of Home Affairs is mandated to carry out Civil Registration in Zambia.

Zambia is among the African countries with the lowest developed civil registration and vital statistics system. According to the 2012 internal assessment carried out by the DNRPC which is mandated to register births and deaths under the births and deaths Registration ACT Chapter 51 of the Laws of Zambia, the registration coverage is at less than 5%. Lack of completeness in registration coverage has led to subsequent non- use of civil registration information to produce vital statistics to inform and guide policy formulation. Consequently, the CSO which has the mandate to produce and disseminate vital statistics is overly dependent on the following sources of vital statistics:

- Population Censuses
- Household based surveys such as the Demographic and Health Survey(DHS)
- Sexual Behavioural Survey (SBS)
- Living Conditions Monitoring Survey (LCMS)

1.2 Background

In September 2012 a second conference of African Ministers responsible for Civil Registration was held in Durban, RSA which recommended strengthening planning, budgeting, monitoring and evaluation of CRVS. The conference stressed the importance of formulating country owned concrete and time bound National Action Plans for the improvement of CRVS systems. The inclusion of action plans in national development plans so as to feed into national budgets was further recommended.

The importance of civil registration and vital statistics in advancing Africa’s development agenda including accelerating regional integration and meeting Millennium Development Goals (MDGs) was recognized. In the light of the above, African Ministers reaffirmed commitment to scale up efforts aimed at improving CRVS systems in respective countries.

Against this background, an expert group was formed to oversee the overall development of the National Action Plan to reform and improve civil registration and vital statistics in Zambia.

Through this action plan, Government is committed to continue developing appropriate policies and strategies to reform and improve CRVS in Zambia through:

- I. Improving the availability and accessibility of civil registration services by devolving services to local levels. This thematic area has two streams:
 - a. Integration of the health system into civil registration
 - b. Integration of the community system into civil registration
- II. Adopting appropriate technologies to speed and scale up civil registration, manage civil registration records and application of ICTs in improving CRVs.
- III. Strengthening and facilitating coordination between CSO and DNRPC to ensure development of vital statistics from civil registration information.
- IV. Awareness creation and public education on the importance of civil registration.

The development of this action plan took into account background information from birth registration studies and assessments conducted by DNRPC in 2008 and 2012 with the support from UNICEF. Conclusions and recommendations from the 7th ASSD and 8th ASSD held in January 2012 in Cape Town, RSA and, Yamoussoukro Cote D'Ivoire in November 2012 respectively; and the second conference of African Ministers responsible for civil registration held in Durban, RSA in September 2012 were further taken into account.

Supplementary information on integration of civil registration into the community system was obtained from an assessment conducted in Chief Mumena in October 2012. The bottleneck analysis conducted by the UNICEF in March 2012 provided much insight on bottlenecks both in the supply and demand context. Internal DNRPC assessments conducted in Luapula, Eastern and Southern Provinces gave insights into administrative bottlenecks.

It is envisaged that the thematic areas which form the underpinning of this action plan will dissolve the bottlenecks and guarantee the improvement of civil registration and vital statistics in Zambia.

2.0 CHAPTER TWO: SITUATION ANALYSIS

2.1 Introduction

The situational analysis of Civil Registration and Vital Statistics in Zambia is based on the supplementary assessment of the National Civil Registration and Vital Statistics undertaken by DNRPC conducted between November 2013 and January, 2014. This assessment was based on the regional assessment tools and guidelines developed by the Regional CRVS secretariat based at the United Nations Economic Commission for Africa. Supplementary information was obtained from the studies conducted by DNRPC in corroboration with cooperating Partners. Statistical information produced by CSOs was also taken into consideration. Accordingly, the information in the situational analysis presented in this action plan is premised on the following reports;

- a) Report on the Supplementary Assessment of the National ,Civil Registration and Vital Statistics System, 2014
- b) Status Report- Birth Registration of Refugee Children in Africa, UNHCR, 2012
- c) Zambia Demographic and Health Survey, 2007
- d) An internal assessment of Birth and Death registration coverage by DNRPC, 2012
- e) Birth Registration Survey, GRZ/UNICEF, 2008
- f) United Nations Principles and Recommendations for a Vital Statistics System, 2010
- g) Birth Registration Bottleneck Analysis, UNICEF, 2012
- h) Pilot 2010 SAVVY Results
- i) Traditional Leaders involvement in Civil Registration, A case study of Chief Mumena's Chiefdom, DNRPC, 2012
- j) Internal Assessments conducted by Tetra Tech ARD under the US AID Zambia Institutional Reform Program focusing on Information Technology, Human Resource, Corruption, Organizational and Management Issues.

These assessments and reports provided a broad insight into the challenges that have continued to militate against the development of Civil Registration and Vital Statistics in Zambia. They further provide a sound basis for developing solutions to counter the bottlenecks in a holistic and integrated framework.

2.2 Birth and Death Occurrence in Zambia

According to the 2007 ZDHS report, Maternal Mortality Ratio (MMR) increased from 649 deaths per 100,000 live births in 1996 to 729 in 2002 and then declined to 591 in 2007. The increase was attributed to an increase in the number of women delivering at home without skilled attendants and partly due to the HIV and AIDs Pandemic. Access to health services at community level remains to be poor especially access to emergence obstetric care.

The ZDHS report (2007) revealed that about 52% of births occur at home while 43% of deliveries occur in the public health facilities while 5% in private health facilities. The percentage of births attended by skilled personnel declined from 51% in 1992 to 47% in 2007. It was estimated that younger women and women having their first

delivery are more likely to deliver in health institutions. The same report indicates that urban women are more likely to deliver in health facilities compared with the rural counterparts.

Access to skilled medical attendants for women especially in rural areas can be attributed to several factors including long distances to the health facilities, lack of adequate infrastructure, poor transport systems and poverty.

Similarly, the SAVVY, 2010 indicates that about 48% of the deaths occur at home and are not recorded in the health facilities. Reasons could be attributed to accessibility issues in terms of long distances and lack of transport to health facilities among other factors.

2.3 Birth Registration

According to the 2007 Zambia Demographic and Health Survey report, it was estimated that birth registration is at 14% national coverage. Five percent of the poorest population have at least 20% of children registered while Thirty One percent (31%) of the richest have twenty percent (20%) of their children registered. In terms of rural/urban divide, about Nine percent (9%) of rural children have their births registered while Twenty Eight percent (28%) urban children have their births registered. Whilst the available national data provides a worrying picture of birth registration in Zambia, it also masks disparities at district level which are even of greater concern than those indicated in the national figures.

2.3.1 Challenges in Achieving Complete Birth Registration

Arising from the Supplementary Assessment of the National CRVS (2014) and the UNICEF Birth Registration Bottleneck Analysis (2012), various factors on the Supply and Demand sides affecting complete coverage of birth registration were identified. Factors affecting the supply and demand sides have been discussed separately.

2.3.2 Factors Affecting the Supply Side

- a) **Geographic Factors:** Zambia is a vast country with a sparse population. While DNRPC has representation in every district, the districts are vast with only one registration Centre located at the district headquarters. This leads to issues of remoteness and related costs associated with reaching small remote populations.
- b) **Certification of registered births is centralized at the DNRPC Headquarters.** This results in creation of a backlog of applications as a few headquarters (HQ) staff have to deal with applications from all provinces. Centralization further creates the costs associated with application transmission from districts to provinces then to headquarters and back again. This further increases lead times resulting to discouragement of the public.
- c) **Low staffing and skills levels in officers:** There is inadequate, unsystematic and unplanned orientation of service providers. The low staffing levels makes DNRPC incapable of conducting mass registration. There has been lack of significant

investment both technical and financial in reforming and improving the structure of DNRPC

2.2.3 Bottlenecks Affecting the Demand for Birth Registration

- a) **Lack of Information:** There is limited information at local level on birth registration and the legal requirements to both communities and service providers. The majority public do not understand the importance and benefits of birth registration.
- b) **Long Distances to Registration Centres:** This makes it difficult for families most of whom are poor and live in remote areas to access the service due to long distances to registration centres which are only available at district headquarters.
- c) **Wide Acceptance of User alternative Documents:** Birth records and under-five clinic cards are widely and easily accepted in lieu of birth certificates in accessing services that may require birth certificates such as enrollment into school and accessing health services. The use of affidavits in lieu of birth certificates for obtaining National Registration Cards and travel documents has contributed to low demand for birth registration.
- d) **Social Factors:** The common social factor contributing to low birth registration is child naming. The naming of children especially for the rural populace is done several days after the child is born. This is attributed to local customs and beliefs and affects the registration of children immediately after birth as the child's full names are not available for registration.

As part of the bottleneck analysis, sampling was undertaken of district level registration data in three pilot provinces of Eastern, Luapula and Southern. District level data as notification of birth was then compared to the projected live birth rates taken from the population 2000 to 2015 Demographics Report, Ministry of Health/Central Statistical Office.

The findings reveal that birth registration rates are actually significantly lower than what the national data reveals. An example of Eastern Province registration is provided below:

EASTERN PROVINCE
2011 Aggregate Birth Registration Data

Districts	Notice of Birth	Certificates	Live Births	% Live Births with Birth Certificates
Chadiza	18	0	6,550	0
Chipata	336	40	25,611	1.3
Mambwe	22	22	3,291	0.7
Nyimba	47	08	4,197	0.2
Petauke	387	106	17,313	0.6

Source: GRZ/UNICEF 2012 Bottleneck Analysis

2.3 Death Registration

Deaths are registered under the Births and Deaths Registration Act chapter 51 of the Laws of Zambia. The Office of the Registrar General is charged with the responsibility of registering deaths occurring within the boundaries of the Republic of Zambia.

According to the 2010 pilot SAVVY results; 48% of deaths occur at homes, 6% occur in other places and 46% occur in health facilities while.

The registration coverage of deaths is lower than birth registration statistics. An internal assessment conducted in July 2012 by DNRPC revealed that most districts especially in rural provinces do not register deaths. According to the report, only 22% out of a sample of 26 districts in Copperbelt, Central and North-Western Provinces register deaths. The internal assessment further showed that less than 1% of deaths occurring in Zambia are registered with the Civil Registration Authority. Most districts where registration of deaths is conducted reported that registration is conducted by local authorities. DNRPC receive the notification forms for issuance of death certificates. This does not translate in the registration and issuance of death certificates as per provision of the legal framework of the country.

2.3.1 Problems associated with Death Registration

Death Registration in Zambia is faced with many challenges. A weak coordination mechanism between DNRPC and Local Authorities contributes to lack of certification of deaths registered by Local Authorities. Granted Local Authorities capture a significant number of deaths especially those occurring in health facilities. These are further transmitted to the Registrar General’s office. However, the office of the Registrar General does not Register and certify applications immediately except on request. This has created a huge backlog of unregistered and uncertified deaths by the Registrar Generals office. As part of activities in this National Action Plan, there is need to put up deliberate interventions to register and digitize the backlog of notices of death submitted to Registrar Generals office by Local Authorities. This would further improve on generating causes of death statistics.

Lack of coordination among the RTSA, the Zambia Police Service and DNRPC has contributed to failure to register deaths occurring as a result of road traffic accidents.

The collapse of village registration which served as local population registers has compounded to the problem of capturing community deaths.

2.4 Death Registration and Generating Causes of Death Statistics in Zambia

Registration of deaths is critical in generating causes of death statistics because individual deaths are registered with causes of death as per legal provisions of the Births and Deaths Registration Act chapter 51 of the Laws of Zambia.

For some years, the CSO produced Vital Statistics including causes of death information based on civil registration data. However, the information collected from the Department of National Registration is affected by incomplete reporting and recording of vital events. This has affected the generation of causes of death statistics from civil registration information thus leading to the CSO to be dependent on Population Censuses and Household Surveys in producing causes of death statistics.

Registration of causes of death for deaths occurring in health facilities is easy because qualified physicians attending to deceased persons establish the causes of death which are subsequently registered as indicated on the medical certificate of cause of death certificate. On the other hand, it is difficult to register causes death for 49% of deaths estimated to occur at homes because deceased persons may not have been attended to by qualified physicians capable of determining the cause of death. It is hoped that Verbal Autopsy (VA) will bridge this gap in the short term while access to health facilities by all with qualified health personnel is the permanent solution. This should be governments' focus in the long term.

Coding of causes of deaths based to the International Classification of Diseases (ICD) is not done by any Institution in Zambia. Further, most physicians are not trained in good certification practice to make it easier to derive correct underlying causes of death in the country. This situation has negatively affected production of good causes of death statistics.

2.5 National Registration and Issuance of National Travel Documents

National Registration which is concerned with the issuance of National Identity cards called National Registration cards (NRCs) is conducted under the National Registration Act CAP 126 of the Laws of Zambia.

The issuance of National Travel Documents which include Passports and Travel Documents of Identity is conducted under the Passport Act.

The issuance of National Registration cards and passports to citizens is dependent on proof of citizenship. The proof of Citizenship is dependent on ascertaining the place of birth of a person and the nationality of parents at the time of birth of the applicant. Thus, the registration of births plays a critical role in determination of citizenship and

subsequent qualification of individuals for obtaining National Registration Cards and National Travel documents.

However, because of the weaknesses in birth registration, the issuance of national registration cards and passports rely on affidavits which are sworn statements. The weak link between registration of births and acquisition of this important document has resulted in difficulties in detecting applicants who are not eligible to acquire documents which must only be acquired by Zambian citizens. Applicants who satisfy the requirements of affidavits usually get away with the service regardless of their nationality. This encourages fraudulent activities in acquisition of national identity documents and travel documents.

Strengthening registration of births and deaths should ultimately lead to strengthening processes for acquisition of national identity cards and travel documents. Much as the present National Registration Card is susceptible to forgery because of being produced using outdated technology, the process of acquisition is more important in securing the document. Thus, there should be sufficient investment in technology and human resource strengthening in all vital registration which is linked to citizenship. This is the durable solution to further securing other documents which are only supposed to be acquired by Zambian citizens.

2.6 Citizenship

Registration for citizenship for eligible applicants is conducted under the Citizenship Act Cap 124 of the Laws of Zambia. Persons qualifying and successfully registered under this Act become eligible to enjoy the rights and privileges of a Zambian citizen. This includes obtaining National Identity and Travel documents and participating in the electoral process. It is therefore important to keep track persons registered as citizens and link it to the register both manually and electronically to other aspects of civil registration and acquisition of National Identity documents. This would make it easier for identification and determination of eligibility for persons applying for national identity cards and travel documents.

The creation of the National electronic civil register should not overlook the inclusion of persons registered as Zambian citizens under the provisions of the Citizenship Act chapter 124 of the Laws of Zambia.

2.7 Adoptions

Adoptions in Zambia are regulated by the Adoption Act Chapter 54 of the Laws of Zambia. The Department of Social Welfare in MCDMCH facilitates the adoption process. Subordinate courts are charged to hear and grant adoption petitions in accordance with the provisions of the adoption act. Once granted; the Registrar General is compelled to register the adoption in accordance with part III of the adoption act.

Adoptions have citizenship implications. Section 11 of the Citizenship Act chapter 124 of the laws of Zambia states that a child adopted under the provisions of the Adoption Act shall if he was not a citizen at the date of such adoption become a citizen by

adoption on the date of such adoption if the adopter, or, in the case of a joint adoption, one of the adopters was at the date of adoption a citizen.

Such a child then becomes a citizen eligible for all citizen entitlements which include acquisition of national identity and travel documents for citizens. Reforming and improving civil registration should not exclude registration and tracking of adoptions because of the direct implications it has on citizenship. Technological investments and improvements in civil registration should help to link adoptions to acquisition of national identity and travel documents. The electronic national civil register should be inclusive of adoptions.

2.8 Marriage and Divorce Registration

Registration of Marriages is the mandate of the Department of National Registration Passport and Citizenship under the Ministry of Home Affairs. Registration of Marriages is regulated under the Marriages Act chapter 50 of the Laws of Zambia. It is worth to note that only statutory marriages are regulated under the Marriages Act and accordingly registered with the office of the Registrar General. Customary Marriages are not regulated under the Marriages Act. Customary marriages are therefore not registered with the Office of the Registrar General. Local Courts are charged with the responsibility of administering customary marriages.

Registration of marriages is important for the identification of children resulting from the union and subsequent determination of citizenship of children. Further, registration of marriages plays a key role in interstate succession and property administration in an event of death of one of the spouses.

Local Authorities and Ministers of Religion solemnize statutory marriages. Most statutory marriages are however solemnized by Local Authorities which subsequently issue Certificates of Marriage. Certificates of Marriage are then forwarded to the Office of the Registrar General for Certification.

Lack of capacity in staff at district offices on the legal provisions for solemnization and registration of marriages has contributed to low marriage registration and certification.

Though statistics were not collected to determine the percentage of marriages registered against solemnized marriages, it has been observed that few solemnized marriages are registered. There has been no deliberate mechanism put in place for coordination between the Office of the Registrar General and Local Authorities to ensure that all solemnized marriages are registered.

3.0 CHAPTER THREE

3.1 Rationale

The Government of the Republic of Zambia recognizes the invaluable contributions CRVS plays in socio economic planning and monitoring MDGs besides protecting human rights.

Civil Registration is the conventional data source for the generation of continuous and complete vital statistics that provides key health demographic statistics, including many of the MDG Indicators. Furthermore, civil registration produces various legal and administrative information documents that are the basis for safeguarding basic human rights including children and women's rights. Civil Registration can also provide critical information required for the implementation of decentralization and democratization of processes currently progressing in most African countries.

Strengthening birth and death registration for example, has significant impact on securing the national identity system. A secure national identity system contributes to having a robust and credible electoral process. A secure national identity system also has significant positive implications on various social security systems which includes pensions and insurance.

Further, Government shall adequately engage Civil Society, Faith Based organizations, Media Houses and the Private Sector in an effort to strengthen CRVS systems.

3.1 Strategic Shift

The registration of vital events in Zambia has not been proactively undertaken. This is despite the country having compulsory registration laws on births and deaths. This has resulted in extremely low registration completeness and coverage. The country is therefore unable to produce and disseminate vital statistics on births, deaths and causes of death to contribute to planning and evaluating national programmes including MDGs based on Civil Registration.

The Government of the Republic of Zambia has recognized the need for a paradigm shift from the current practices and trend in vital event registration to a more vibrant system. This shift means that the government through DNRPC which is the Civil Registration Authority in Zambia shall proactively endeavor to register all births and deaths occurring in the republic and devise mechanisms to capture marriages and divorces.

This should translate in the annual publication of vital statistics through the CSO on births, deaths and causes of death. This will help the country to have the data for monitoring maternal and child mortality, the disease burden at the lowest administrative levels and calculating life expectancy.

3.2 Vision

A Zambia where all vital events are registered and vital statistics derived therefrom by the year 2030.

3.3 Strategic goals

- 3.3.1 A legal framework that meets regional and international standards and compels compulsory registration and compliance.
- 3.3.2 A Civil Registration Authority with an organizational structure and infrastructure that are responsive to the CRVS needs.
- 3.3.3 Produce vital statistics based on the civil registration system
- 3.3.4 To have a communication and advocacy strategy that is responsive to information needs on CRVS
- 3.3.5 Complete registration of all vital events occurring among Refugees and other minority population groups.
- 3.3.6 Register all deaths and produce internationally acceptable cause of death information for deaths occurring in health facilities and communities.
- 3.3.7 Information and communication technology infrastructure that is adequate and appropriate for capturing, processing, analyzing, reporting, and storage of civil registration records and also linking other systems related to CRVS.

3.4 Strategic outcomes

- 3.4.1 Appropriate Civil Registration Authority organization structure and infrastructure capable of meeting CRVS needs
- 3.4.2 Percentage of registration of births increased from the estimated 14% to 80% and percentage of deaths increased from the estimated less than 1% to 60 over a ten year period
- 3.4.3 A Zambian population well informed on the need and requirements to report and register vital events
- 3.4.4 Vital statistics products including cause of death information from civil registration made available to inform policy and planning at the lowest administrative level.
- 3.4.5 Capturing all vital event occurring among refugees and other minority groups
- 3.4.6 A fully computerized CRVS system able to conduct electronic capture, processing, storage and analysis of vital events

3.5 Critical Success factors

The realization of the outcomes espoused in this strategic plan is dependent on the following critical success factors:

- 3.5.1 Availability of a Statutory Instrument that will facilitate decentralization
- 3.5.2 Enactment of the laws that allow for sharing of data and identify the lead agency
- 3.5.3 Availability of ICT infrastructure
- 3.5.4 Availability of financial resources

- 3.5.5 Implementation of the revised DNRPC establishment
- 3.5.6 Presence of an advocacy and communications strategy
- 3.5.7 Availability of ICD manuals in all institutions dealing with death reporting and registration
- 3.5.8 Availability of trained health personnel in ICD classification and coding of causes of deaths
- 3.5.9 Sensitized community on the importance of registering vital events
- 3.5.10 Harmonized indicator definitions, data collection tools and reporting structure

4.0 CHAPTER FOUR

4.1 Purpose of the action plan

Civil Registration as mentioned in the preceding sections is very low in Zambia. As such, the country has embarked on strategies aimed at reforming and improving Civil Registration and Generation of Vital Statistics from Civil Registration Records.

In view of the above, this action plan is aimed at improving Civil Registration and Vital Statistics in Zambia. It outlines strategies and activities to achieve robust system which is able to contribute to vital statistics needs. It is further aimed at linking civil registration to the national ID and travel document issuance to contribute to national security.

4.2 Strategic objectives and specific objectives

Strategic objectives and specific objectives are articulated according to thematic areas as discussed below.

4.3 Thematic Areas of Focus

The interventions in this National Action Plan to reform and improve civil registration and vital statistics are divided into specific thematic areas. The interventions address bottlenecks both on the supply and demand sides. Interventions cover organizational and Management issues, integration of civil registration into the health and community systems, policy and legislative issues, the use of ICTs in civil registration, bridging the gap between civil registration and the National Statistical system and communication, awareness creation and public education.

4.3.1 Organizational and Management Issues

The Department of National Registration, Passports and Citizenship with support from the USAID under the Zambia Institutional Reform Program (ZIRP) executed by Tetra Tech ARD conducted an in-depth organizational and Human Resource Assessment. The assessment revealed that there has been lack of significant investment in skills development in staff to support the organizational mission and vision. Furthermore, the organizational structure of the department is not responsive to the changing realities that the DNRPC has to deal with. Significant investment both technical and financial to re-design and overhaul the DNRPC to reflect its broad mandate was therefore recommended. Additional assessments that were conducted on the CRVS situation revealed more challenges in the following areas:

a) Weak Linkages among CRVS agencies

The functions in the CRVS system are performed by a number of organisations. However, the organisations operate independent of each other. This has created disparities in the methodologies employed and quality of data that is collected rendering the data user-producer mechanism weak.

b) Inadequate Organisational Structure

The existing current organisational structure is inadequate to meet the needs of a well-functioning CRVS system, for example, the structure does not include statistics, legal, ICT, and public relations units. Human resource staffing at all levels are low contributing to the challenge of increased workloads.

c) Registration Procedure

The registration procedures for all vital events is tedious and lengthy requiring the provision of a number of supporting documents such as Affidavit forms, copies of NRC, records of birth, certificate of cause of death and many others.

d) Centralized Processing of Applications

The issuance of certificates to all vital events is centralized to DNRPC headquarters. This delays the process of issuing certificates within the stipulated timeframe.

e) Management of Records:

Records management is manual based resulting in duplication of records, errors and missing documents. The movement of vital events application forms back and forth has no trail mechanism leading to loss of application forms and delays in service delivery. This complicates the re-application process and discourages the public.

f) Performance standards

Lack of adherence to performance standards in monitoring progress has resulted in unspecified lead times which discourages the public from registering vital events.

MANAGEMENT AND ORGANIZATION

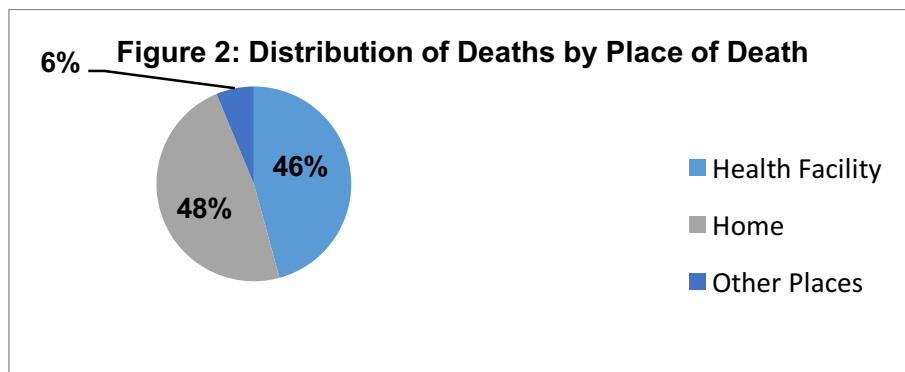
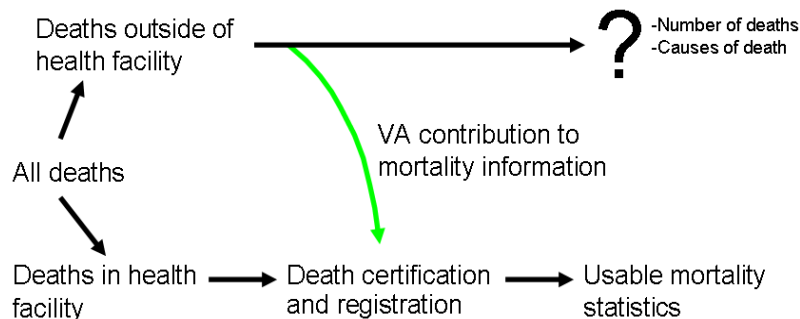
Strategic Objective: To create a CRVS system with an organizational structure and infrastructure that are responsive to the CRVS needs	
Specific Objective	INTERVENTION ACTIVITIES
To improve the CRVS system through a functional decentralized organisational structure at all levels	<ol style="list-style-type: none"> 1. Engage a consultant to review and propose a structure 2. Engage MDD to validate proposed organizational structure 3. Submission of proposed structure to Cabinet Office 4. Conduct a skills gap analysis 5. Open up registration centres at Sub district level 6. Create functional multi-sectoral CRVS committees at all levels.
To standardize registration and reporting process across the country to have a uniform civil registration process in all districts in the country	<ol style="list-style-type: none"> 1. Review the BPR recommendation from studies under USAID/ZIRP 2. Validate BPR recommendations visa-a-viz overall development and improvement of CRVS/national identification system (INRIS)project 3. Production and distribution of desk manuals for recommended processes 4. Training of staff in new positions 5. Review the service charters to respond to the results of BPR and ICT applications
Improve document management including application tracking, storage and retrieval systems	<ol style="list-style-type: none"> 1. Review and implement recommendations and proposals from the USAID/ZIRP Business Process Re-engineering (BPR) report.

4.3.2 Death Registration and Causes of Death Information

Death registration in Zambia is conducted under the births and deaths registration ACT, Chapter 51 of the Laws of Zambia. The Law provides for compulsory reporting and registration of deaths and causes of death, which therefore, is a strong basis for generating statistics on deaths and causes of death from the civil registration system. According to the DNRPC internal service delivery assessment of 2012, the percentage of completeness for death registration is estimated at less than one percent (1%).

For some years, CSO produced Vital Statistics including causes of death information based on civil registration data. However, the information collected from the Department of National Registration has been affected by incomplete reporting and registration of vital events. This has affected the generation of causes of death statistics from civil registration information. Consequently, CSO depend on Population Censuses and Household Surveys in producing statistics on deaths causes of death.

Establishing and Registering of causes of death for deaths occurring in health facilities is easy because qualified physicians attending to decedents establish the causes of death as it is a practice for physicians in Zambia complete the internationally recognized medical certificate of the cause of death. However, deaths occurring outside health facilities are not often reported and consequently not registered. According to Sample Vital Registration with Verbal Autopsy 2012 results, 54% of deaths occur outside health facilities. This means that only 46% of deaths in Zambia occur in health facilities. The results described above are depicted in the diagrams below.



The production of good cause of death information is further affected by non - assignment of ICD codes. Currently, Zambia has inadequately used and applied the

ICD in the coding of diseases because of the non -availability of up to date ICD materials and appropriate coding skills.

DEATH REGISTRATION AND CAUSE OF DEATH INFORMATION

STRATEGIC OBJECTIVE: To increase the number of deaths reported and registered with appropriately assigned causes of death using International Classification of Diseases	
Specific Objective	INTERVENTION ACTIVITIES
To Strengthen the use of ICD in the classification of causes of death	<ol style="list-style-type: none"> 1. Develop a training module on the cause of death certification and assignment of ICD codes 2. Establish a central National coding centre. 3. Lobby for the inclusion of ICD training module in the medical staff curriculum 4. Institute a training plan for certification of causes of death by medical personnel 5. Provide up to date ICD materials to health facilities and other institutions dealing with reporting and registration of deaths 6. Develop a quality assurance plan for causes of death processes 7. Institutionalize coding technology
To increase the numbers of deaths reported and registered occurring outside the health facilities	<ol style="list-style-type: none"> 1. Identify and train cadres to be involved in the reporting and registration of community deaths 2. Adopt and institutionalize verbal autopsy methodology and tools 3. Train medical and other personnel on verbal autopsy reporting methodologies 4. Sensitize the communities on the importance of registering deaths 5. Conduct community mobile death registration campaigns

4.3.3 Use of Information and Communication Technology in civil registration

The National Registration Office being responsible for issuance of National Registration Cards and registration of births, deaths, marriages and adoptions has the mandate to capture data and serve as the repository of metadata and statistics on all persons living in Zambia including citizens and foreign nationals resident in the country. The department ultimately generates among many things National Registration Cards, birth, adoption, marriages and death certificates.

As a way of improving the services at the National Registration Office, the government of the Republic of Zambia embarked on a number of initiatives related to service delivery improvement such as improving the conduct of work in the public service by embracing Information and Communication Technology (ICT) through the development and adoption of the ICT policy. Riding on this shift to the use of ICT, the government further embarked on an initiative to digitize some national identification documents through the implementation of the Integrated National Registration Information System (INRIS), a system that comprehensively integrates all the IT tools and functions needed by a Government to conduct registration of citizens, verify personal information, positively identify a citizen, and provide accurate and credible reports, statistics and citizen information to authorized government agencies. The INRIS is made up of various components of which National Registration is one of them. Other modules include; birth and death Registration, Marriage Registration, Adoptions Registration, Village Registration, Citizenship Registration and Passport issuance.

In this regard, efficiency and effectiveness in civil registration and vital statistics will be enhanced by embracing the use of ICT. Service delivery in the past has been overtaken by the demand due to reduced capacity as a result of manual systems in DNRPC. This also made it practically difficult to share vital statistics with other key stakeholders CSO.

It is envisaged automated CRVS processes will not only reduce processing time but will also improved reporting and data quality. The use of ICT will also improve communication within organizations in ease of sharing vital information, as a tool to support development processes.

USE OF COMMUNICATION DNA INFORMATION TECHNOLOGY IN ICT

STRATEGIC OBJECTIVE: To make Civil Registration and Vital Statistics more efficient and effective through the use of ICTs	
Specific Objective	INTERVENTION ACTIVITIES
Build an automated system for electronic capture, processing, storage and retrieval of CRVS information	<ol style="list-style-type: none"> 1. Business Process Re – engineering (BPR) of the CRVS process. 2. Modeling and design of system 3. Development of the INRIS system 4. Linking of all system target users 5. Implementation and rolling out of an integrated system 6. Review and enhancement of the INRIS system 7. Digitization and migration of legacy data
To optimize the use of the mobile technology to enhance vital events notification	<ol style="list-style-type: none"> 1. Engage mobile internet service providers on the provision of mobile services in vital event notification 2. Develop mobile web applications for remote access via mobile technology
Physical infrastructure development	<ol style="list-style-type: none"> 1. Design appropriate physical infrastructure for provincial and district offices to house ICT infrastructure. 2. Construct, rehabilitate and renovate physical infrastructure for provincial and district offices to house ICT infrastructure.
To build capacity in DNRPC to manage an automated CRVS system	<ol style="list-style-type: none"> 1. Create an ICT Unit in the department of National Registration 2. Train system administrators, database administrators, network and security specialists and application developers

4.3.4 Vital Events Registration for Refugees and Minority Groups

The principle legislation which governs the refugee management in Zambia is the refugees control ACT, Chapter 120 of the Laws of Zambia. This ACT however, does not make provision for the registration of vital events. The office of the Commissioner for Refugees which has the responsibility of managing the refugees in Zambia currently does not capture vital events occurring among the refugee population.

During the second conference of African Ministers responsible for Civil Registration held in Durban RSA in September 2012, it was resolved that member states should promote the registration of most vulnerable children and implement laws and or policies on registration of vital events so as to ensure the timely and compulsory registration of vital events for all refugee children, including returnees and internally displaced persons within national territories. This is in accordance with Article 23 of the African Charter on the rights and welfare of the child and Article 22 of the convention of the rights of the child which stipulate special protection to be granted to refugee children for preservation of identity and nationality.

It is worth noting that the laws governing civil registration in Zambia do not discriminate against nationality or civil status of individuals. Nonetheless, challenges affecting refugees in accessing civil registration documents especially birth and death certificates have been acknowledged and dealt with through a policy direction as reflected in the broad intentions of the African Charter and the Convention on the Rights of a Child (CRC).

It is worthy to mention that United Nations High Commissioner for Refugees (UNCHR) has from time to time put up deliberate interventions to help refugees to access birth certificates through organized mobile registration in refugee camps. On the other hand, the Government has had no deliberate plans to assist refugees in accessing civil registration documents. The CRVS strategic plan shall therefore form a policy framework for working out deliberate interventions to ensure that refugees are given priority and specific budgetary allocations for civil registration purposes.

Refugees are clearly and easily identified as the Commissioner for Refugees under the Ministry of Home Affairs in conjunction with UNHCR keeps an electronic data base for all refugees and their children besides issuing them with identification cards. The refugee population as at June 2014 is fifty one thousand seven hundred and two (51,702) with an estimated number of births being 130 per month.

Lack of a deliberate policy on assisting refugees has resulted into undefined procedural mechanisms for dealing with refugee applicants seeking civil documents. This has led to delays and difficulties by refugees in accessing civil registration documents such as birth certificates. It is expected that DNRPC shall work closely with the Commissioner for Refugees and the United Nations High Commissioner for Refugees by organizing mobile facilities and establishing registration centres in health facilities situated in Refugee Camps for easy access to civil registration services. Further, special procedures

for screening refugee applicants shall be developed to address administrative challenges faced by refugee applicants.

VITAL EVENT REGISTRATION FOR REFUGEES AND MINORITY GROUPS

STRATEGIC OBJECTIVE: To achieve complete vital events registration for refugees and minority groups	
SPECIFIC OBJECTIVE	INTERVENTION ACTIVITIES
To increase the birth registration and certification coverage from less than 5% to 60% by 2020.	<ol style="list-style-type: none"> 1. Establishment of registration centres in refugee camps 2. Development of standard registration guidelines for refugee application 3. Training of registration officers 4. Conduct mobile registration
To increase the death registration and certification coverage from less than 1% to 50% by 2020.	<ol style="list-style-type: none"> 1. Establishment of registration centres in refugee camps 2. Development of standard registration guidelines for refugee application 3. Training of registration officers 4. Apply verbal autopsy in mobile death registration
To increase awareness on the need to register vital events among refugee populations	<ol style="list-style-type: none"> 1. Formulate an advocacy and communications strategy for refugees

4.3.5 Vital Statistics from Civil Registration

The civil registration system is a good source of continuous vital statistics if vital events registration is complete. Civil Registration in Zambia is the mandate of the DNRPC. The Department collects the information on vital events through routine its registration activities. The information collected is mainly for administrative purposes. The mandate to produce and disseminate vital statistics lies with CSO through the Census and Statistics Act CAP 127 of the Laws of Zambia.

For some years, CSO produced and disseminated vital statistics information based on records from the DNRPC. However, the information collected from the Department was affected by incomplete reporting and recording of events. Moreover, the information existed in hard copy formats in registers and books. Availability of this important information generated from these records such as the timing of the event, place of occurrence, background characteristics, classification by residence, marital status and other demographic and socio-economic categories was thus affected, and hence was not made readily available to inform and guide policy formulation. Following all these problems associated with data from the civil registration, the CSO suspended production of statistics based on data from the civil registration system.

In recent years, however, the Department of National Registration has gone through transformation and there are now efforts to improve both the coverage and completeness of vital events registration and providing information on time. Efforts are also being made to digitize the data collection system. Following these developments, it is important that a link between the Department of National Registration and the CSOs is created so that information on vital statistics is analyzed and disseminated to users.

VITAL STATISTICS FROM CIVIL REGISTRATION

STRATEGIC OBJECTIVE: To produce and disseminate vital statistics based on the civil registration system	
SUB OBJECTIVE	INTERVENTION ACTIVITIES
To improve the collection of vital events information using internationally acceptable data collection tools.	<ol style="list-style-type: none"> 1. Review and harmonize civil registration data collection forms and registers against international standards 2. Set up data collection and processing systems 3. Printing of data collection instruments 4. Institutionalize community vital registration with verbal autopsy
To improve publication of vital statistics reports from civil registration system	<ol style="list-style-type: none"> 1. Develop template for quarterly and annual publication of vital statistics for national provincial and district levels 2. Set and agree on dates and methods for quarterly and annual publication of vital statistics at national provincial and district levels 3. Training of CSO and DNRPC regional staff on compiling vital statistics information from Civil Registration

4.3.6 Communication, Advocacy and Awareness creation

The population of Zambia has been growing at an average of 2.8 percent during the last census period but the statistics on vital registration is very low. This is largely attributed to a lack of knowledge on the need and benefits of civil registration amongst many people. There have been efforts to create awareness but these strides by the various stakeholders have not been coordinated because of the non-availability of a formalized strategy.

In view of the foregoing, a communication, advocacy and awareness strategy will create a common approach to awareness creation and ultimately enhance civil registration. This plan has laid down strategic approaches to this thematic area.

STRATEGIC OBJECTIVE: To increase the demand for civil registration by creating awareness on the importance of CRVS through developing and implementing a Communication, Advocacy and Awareness strategy	
SUB OBJECTIVE	INTERVENTION ACTIVITIES
To build capacity within the DNRPC to undertake advocacy and communication activities	1. Create a community and public relations unit within DNRPC
To formulate a Communication and Advocacy strategy	1. Develop a communication, advocacy and awareness creation strategy 2. Conduct advocacy. Communication and awareness campaigns
To mainstream Civil registration in the Zambian school curriculum	2. Lobby for the inclusion of Civil Registration topics in civic education through Curriculum Development Centre (CDC)

4.3.7 Policy and legal framework

Civil registration in Zambia is governed by a set of laws which are enforced by DNRPC under the Ministry of Home Affairs. The laws include the Births and Deaths Registration Act Chapter 51 of the Laws of Zambia, the National Registration Act Chapter 126 of the laws of Zambia, the Marriages Act chapter 50 of the laws of Zambia and the Adoption Act chapter 54 of the laws of Zambia. These laws are primarily intended to be the basis for compliance and a guide to procedures in civil registration.

Key stakeholders have expressed concerns in the past on some of the provisions of the pieces of law related to civil registration. As a result the Zambia Law Development Commission (ZLDC) embarked on collecting submissions from the stakeholders. In the process of reviewing laws affecting child welfare, the Commission received submissions to review specific sections of the Births and Deaths Registration Act Chapter 51 of the Laws of Zambia. With the need to reform and improve registration of vital events other laws other than the births and deaths registration act need to be reviewed.

During the research process, it was observed that the substantive part of the Act is still appropriate and responds well to current realities. However, the procedural part which is regulation will need to be comprehensively reviewed to make it responsive to emerging issues. This would require wider stakeholder consultation. This process will lead to the review and ultimately amendment of the respective laws.

Not much has been done to provide a framework to guide actors involved in conducting and mobilizing for civil registration. It is envisaged that policies in the various areas of civil registration are going to set the tone for actors to plan with focus in the direction of the provisions in the framework.

STRATEGIC OBJECTIVE: To improve the CRVS system through a comprehensive legal framework which is responsive to socio-economic trends	
SPECIFIC OBJECTIVE	INTERVENTION ACTIVITIES
To create legal framework that meets regional and international standards and compels compulsory registration and compliance.	<ol style="list-style-type: none"> 1. Review, amend and harmonize the relevant pieces of legislation related to CRVS 2. Draft a Statutory Instrument to amend registration procedures, forms and decentralize certification.
To strengthen the DNRPC organizational capacity in the CRVS legal framework	<ol style="list-style-type: none"> 1. Lobby for the establishment of the legal department 2. Build capacity through in-house workshops on CRVS related legal matters

5.0 CHAPTER FIVE

5.1 Coordination

DNRPC in the Ministry of Home Affairs will be responsible for overall coordination of implementation of the National Action Plan. The role of the Central Statistical Office and the Ministry of Health in assisting coordination of implementation of the plan shall be critical because of the experience in coordination of various development projects involving various actors, such as the SAVVY. It is expected that various developmental partners supporting different components stipulated in this action plan shall synergize to work towards overall implementation of the action plan to contribute to realizing the overall goal of having a complete, efficient and effective CRVS system which is capable of providing vital statistics for socio-economic planning, monitoring development efforts besides protecting rights of individuals.

In order to achieve a coordinated approach in the overall implementation of the action plan, the National Steering Committee shall hold regular quarterly meetings to resolve high level policy issues affecting NAP activity implementation. The National Steering Committee shall play a key role in ensuring donor coordination and resource mobilization. It is expected that the Secretary to the Cabinet shall direct Provincial Permanent Secretaries to form Vital Registration Committees in respective provinces which shall be recognized sub-committees of the Provincial Development Coordinating Committees. This shall be replicated in at district level in District Development Coordinating Committees. These committees shall ensure that the civil registration agenda is driven at provincial and district levels

The overall successful implementation of the NAP shall to a large extent depend on sector financing because of the cross cutting nature of CRVS. All key ministries will be required to synergize to pool resources from yearly treasury allocations in order to successfully implement the NAP. Development Partners funding various components of CRVS shall be required to work within the context and framework articulated in the action plan.

5.2 Resource Requirements, Mobilization and Sustainability

The overall and complete implementation of the National Action Plan to reform and improve civil registration and vital statistics is to a large extent sustainable. This is because the Government of the Republic of Zambia has been and remains committed to funding CRVS through yearly treasury allocations. Furthermore, because CRVS cuts across sectors, implementation of CRVS Action Plan activities shall take advantage of sectors financing through normal annual treasury allocations.

Reforming and Improving civil registration and vital statistics will build on existing programmes and initiatives. Government Ministries such as Health, Community Development Mother and Child Health, Transport, Works Supply and Communications Local Government, Chiefs and Traditional Affairs have existing structures and mechanisms on which implementation of particular NAP activities will ride on.

Development Partners such as UNICEF, UNFPA, UNHCR, UNDP, USAID, PLAN INTERNATIONAL and World Vision are already supporting components pertaining to CRVS.

The involvement of traditional rulers in CRVS shall not only ensure a far reaching CRVS system but further guarantee sustainability of CRVS system at the level of the community

6.0 CHAPTER SIX: COST FRAMEWORK

6.1 Cost Framework for the CRVS National Strategic Action Plan

THEMATIC AREA: ORGANIZATIONAL AND MANAGEMENT ISSUES									
OUTPUT	ACTIVITY	SUB-ACTIVITIES	LEVEL	TIMEFRAME				RESPONSIBLE INSTITUTION	COST ZMK
				Q1	Q2	Q3	Q4		
New Establishment for DNRPC developed	Conduct an internal organizational structure review to include ICT, Legal, M&E and PR units	ToR developed, Tendering and Recruitment of Consultant	National	X	X			DNRPC	40,000
	Engage MDD to validate proposed organizational structure	Meetings	National		X			DNRPC, MDD	20,000
	Submission of proposed structure to Cabinet Office for approval	Submission letter, proposals & establishments	National		X			DNRPC, Cabinet Office	0
	Conduct a skills gap analysis	Desk reviews, interviews	National			X		DNRPC	40,000
	Open up registration centres at Sub district level		National						25,000
	Create functional multi-sectoral CRVS committees at all levels	Meetings	National						0
New BPR process in place and Improved clientele service	Review the BPR recommendations from studies under USAID/ZIRP	Meetings	National			X		DNRPC	25,000
	Validate BPR recommendations vis-a-viz overall development and improvement of CRVS/ national identification system (INRIS) project	Meetings	National			X		DNRPC	25,000
	Production and distribution of desk manuals for recommended processes	Development & Printing of manuals	National			X		DNRPC	150,000
	Training of staff in new positions	Capacity Building workshops	National				X	DNRPC	550,000
	Review the service charters to respond to the results of BPR and ICT applications	Meetings	National				X	DNRPC	50,000

THEMATIC AREA: DEATH REGISTRATION AND CAUSES OF DEATH INFORMATION

OUTPUT	ACTIVITY	SUB-ACTIVITIES	LEVEL	TIMEFRAME				REPOSIBLE INSTITUTION	COST ZMK
				Q1	Q2	Q3	Q4		
Use ICD codes for the classification of Causes of Death	Develop a training module on the cause of death certification and assignment of ICD codes	Meetings	National	X				DNRPC, MOH, MOCTA, CSO, MLG&H	150,000
	Lobby for the inclusion of ICD training module in the medical staff curriculum	Meetings	National	X	X	X	X	MOCTA, DNRPC	0
	Institute a training plan for certification of causes of death by medical personnel	Capacity building, training workshops	National/ Provincial /District	X	X	X	X	MOCTA, DNRPC	1,000,000
	Procure and distribute ICD materials to health facilities and other institutions	Provide ICD desk manuals	National	X	X	X	X	MOCTA, DNRPC	9,000,000
	Develop a quality assurance plan for causes of death processes								
Registers on death registration harmonized and distributed to all data collection points	Identify and train cadres to be involved in the reporting and registration of community deaths	Capacity building, training workshops		X				DNRPC, MOH, MCDM&CH	1,000,000
	Adopt and institutionalize verbal autopsy methodology and tools			X	X	X	X	DNRPC	400,000
	Train medical personnel on verbal autopsy reporting methodologies	Training workshops		X	X	X	X	DNRPC	1,000,000
	Sensitize the communities on the importance of registering deaths	Roadshows, Radio campaigns, TV advertisements, print media, SMS alerts							

THEMATIC AREA: USE OF ICTs IN CIVIL REGISTRATION

OUTPUT	ACTIVITY	SUB-ACTIVITIES	LEVEL	TIMEFRAME				REONSIBLE INSTITUTION	COST ZMK
				Q1	Q2	Q3	Q4		
A reengineered Business Process for vital events registration.	Business Process Re – engineering (BPR) of the CRVS process – (Completed)	Review and implement the proposed BPR by USAID/ZIRP		X	X	X	X		0
	Modeling and design of system								
	Development of the INRIS system								
	Linking of all system target users								
	Implementation and rolling out of an integrated system								
	Review and enhancement of the INRIS system								
	Digitization and migration of legacy data								
Use mobile technology for information dissemination, and vital events data capturing	Engage mobile internet service providers on the provision of mobile services in vital event notification								
	Develop mobile web applications for remote access via mobile technology								
An integrated CRVS system across agencies throughout the country	Design appropriate physical infrastructure for provincial and district offices to house ICT infrastructure								
	Construct, rehabilitate and renovate physical infrastructure for provincial and district offices to house ICT infrastructure								

THEMATIC AREA: USE OF ICTs IN CIVIL REGISTRATION – continued

OUTPUT	ACTIVITY	SUB-ACTIVITIES	LEVEL	TIMEFRAME				REPOSIBLE INSTITUTION	COST ZMK
				Q1	Q2	Q3	Q4		
A dedicated ICT unit at DNRPC	Create an ICT Unit in the department of National								
	Train system administrators, database administrators, network and security specialists and application developers								

THEMATIC AREA: VITAL EVENTS REGISTRATION FOR REFUGEES AND MINORITY GROUPS

OUTPUT	ACTIVITY	SUB-ACTIVITIES	LEVEL	TIMEFRAME				REPOSIBLE INSTITUTION	COST ZMK
				Q1	Q2	Q3	Q4		
Established vital events registration centers	Establishment of registration centers in refugee camps	Setup physical registration centers	National		X			HARID	80,000
	Development & Printing of standard registration guidelines for refugee application	Developing standard guideline booklets, Planning Meetings, Workshops							20,000
	Training of registration officers in registration skills	Training workshops							50,000
	Training of registration officers in verbal autopsy skills								105,000
Developed communication strategy	Apply verbal autopsy in mobile death registration								100,947
	Conduct mobile registration								
Developed communication strategy	Formulate an advocacy and communications strategy for refugees	Meetings, road shows, community sensitization							200,000

THEMATIC AREA: VITAL STATISTICS FROM CIVIL REGISTRATION

OUTPUT	ACTIVITY	SUB-ACTIVITIES	LEVEL	TIMEFRAME				REPOSIBLE INSTITUTION	COST ZMK
				Q1	Q2	Q3	Q4		
Complete civil registration and vital statistics system	Review and harmonize civil registration data collection forms and registers against international standards		National	X				DNRPC, CSO	38,000
	Set up data collection and processing systems				X	X	X	DNRPC	144,000
	Printing of data collection instruments		National		X			DNRPC, CSO	50,000
	Institutionalize community vital registration with verbal autopsy		National		X			CSO	70,000
Complete CRVS reporting structure	Develop template for quarterly and annual publication of vital statistics for national provincial and district levels	Meetings			X				720,000
	Set and agree on dates and methods for quarterly and annual publication of vital statistics at national provincial and district levels	Meetings			X				305,000
	Training of CSO and DNRPC regional staff on compiling vital statistics information from Civil Registration	Meetings, training workshops			X				545,000

THEMATIC AREA: COMMUNICATION, ADVOCACY AND AWARENESS CREATION

Established public relations unit at DNRPC	Create a community and public relations unit within DNRPC	Meetings	Provincial	X	X	X	X	DNRPC	540,000
Public awareness strategy	Develop a communication, advocacy and awareness creation strategy	Meetings	Provincial	X	X	X	X	DNRPC	108,000
Public awareness campaign country wide	Conduct advocacy, communication and awareness campaigns	Road shows, targeted awareness campaigns	National	X	X	X	X	DNRPC	396,850
Civil registration topics included in civic education	Lobby for the inclusion of Civil Registration topics in civic education through Curriculum Development Centre (CDC)	Meetings	National	X	X	X	X	DNRPC	482,650

THEMATIC AREA: POLICY AND LEGAL FRAMEWORK

OUTPUT	ACTIVITY	SUB-ACTIVITIES	LEVEL	TIMEFRAME				REPOSNSIBLE INSTITUTION	COST ZMK
				Q1	Q2	Q3	Q4		
SI to facilitate registration procedures, forms and decentralized certification	Review, amend and harmonize the relevant pieces of legislation related to CRVS	Meetings							
	Draft a Statutory Instrument to amend registration procedures, forms and decentralize certification	Meetings							
Established legal unit in the DNRPC organizational structure	Lobby for the establishment of the legal department	Meetings							
	Build capacity through in-house workshops on CRVS related legal matters	Meetings, training workshops							
GRAND TOTAL									

7.0 CHAPTER EIGHT: MONITORING AND EVALUATION

7.1 Monitoring and Evaluation of the National Strategic Action Plan

The monitoring of the National Action Plan is cardinal to tracking of resources provided for the implementation of the plan and in ensuring that the plan achieves its outlined objectives. Therefore, the National Action Plan will be measured through a Monitoring and Evaluation framework as a way of measuring implementation and tracking progress, any errors detected along the implementation process will be subject to corrective measures in order to improve the performance of the plan. In so doing this plan will be guided by a M&E Framework that has been developed on the premise of the goals and objectives outlined within it.

A mid-term evaluation will be conducted to assess progress on the achievements of the objectives. This will be done through the indicators that have been outlined within the framework. It is also expected that a final evaluation will be conducted at the end of the implementation period to assess the programme outcomes and the development of the next steps on the course of action.

The NAP activities and the accompanying implementation framework shall form a basis for monitoring and evaluation at district, provincial and national Level. The DDCC shall monitor and evaluate the implementation of activities at District level. The DDCC shall report to the PDCC on the implementation of activities at the level of the province. The DDCC and PDCC shall ensure that progress reporting on vital registration and statistics in the scheduled quarterly meetings. At national level the National Steering Committee on Civil Registration and Vital Statistics shall review progress on quarterly basis besides midterm review.

Technically reporting of vital registration and vital statistics production and dissemination shall be reported to DNRPC and the CSO respectively. These institutions shall arrange quarterly supportive and supervisory visits with the Ministry of Health to monitor activity implementation in provinces and districts.

7.2 MONITORING AND EVALUATION FRAMEWORK

THEMATIC AREA: ORGANIZATIONAL AND MANAGEMENT ISSUES													
OBJECTIVES	OUTCOMES	OUTPUTS	ACTIVITY	INDICATORS	MOV	ASSUMPTIONS	BASELINE	TARGET					PERIOD
								YR1	YR2	YR3	YR4	YR5	
To improve the CRVS system through a functional decentralized organisational structure at all levels	Efficient and effective organizational structure to deliver the needs of a well-coordinated CRVS	New establishment for DNRPC developed	Engage a consultant to review and propose a structure	Consultant engaged	Consultants report	Funds available, restructuring proposal available and authority granted		X					Monthly
			Engage MDD to validate proposed organizational structure	Validated organizational structure	Reports	Restructuring proposal submitted, funds available		X					Monthly
			Submission of proposed structure to Cabinet Office		Letters of submission	Organizational structure validated by MDD		X					Monthly
			Conduct a skills gap analysis	Skills gap report	Reports	Funds available, consultant engaged to conduct the analysis		X					Monthly
			Open up registration centres at Sub district level	Sub District Off. opened		Funds Available Officers Recruited							
			Create functional multi-sectoral CRVS committees at all levels	Committees created		CRVS stakeholder committees in place							
To standardize registration process across the country to have a uniform civil registration process in all districts in the country		New BPR process in place	Review the BPR recommendation from studies under USAID/ZIRP	BPR recommendations reviewed	Reports	Document with recommendations available		X				Monthly	
			Validate BPR recommendations	Validated reports of recommendations	Reports	Funds		X				Monthly	
			Production and distribution of desk manuals	Desk manuals produced	Manuals	Funds available		X					
			Training of staff in new positions	Number of staff trained	Training reports	Funds available, staff placed in positions		X					
			Review the service charters	S-charters reviewed	Reports	Funds available		X					

THEMATIC AREA: ORGANISATIONAL AND MANAGEMENT ISSUES – CONTINUED

OBJECTIVES	OUTCOMES	OUTPUTS	ACTIVITY	INDICATORS	MOV	ASSUMPTIONS	BASELINE	TARGET					PERIOD
								YR1	YR2	YR3	YR4	YR5	
Improve document management including application tracking, storage and retrieval systems		New BPR process in place	Review and implement recommendations and proposals from the USAID/ZIRP Business Process Re-engineering (BPR) report	BPR recommendations reviewed	Reports	Document with recommendations available		X					Monthly
				Validated reports of recommendations	Reports	Funds		X					Monthly

THEMATIC AREA: DEATH REGISTRATION AND CAUSE OF DEATH INFORMATION

OBJECTIVES	OUTCOMES	OUTPUTS	ACTIVITY	INDICATORS	MOV	ASSUMPTIONS	BASELINE	TARGET					PERIOD
								YR1	YR2	YR3	YR4	YR5	
To Strengthen the use of ICD in the classification of causes of death	Internationally recognized classification of death	Up to date Classification of Causes of Death	Develop a training module on the cause of death certification and assignment of ICD codes	ICD Training Module developed		All registers available							Monthly
			Lobby for the inclusion of ICD training module in the medical staff curriculum	ICD training module included in medical staff curriculum		Funds available	TBA	100%	0	0	0	0	Quarterly
			Institute a training plan for certification of causes of death by medical personnel	Training plan instituted		Funds available	TBA	100%	0	0	0	0	Quarterly
			Provide up to date ICD materials to health facilities and other institutions dealing with reporting and registration of deaths	Up to date ICD materials printed		Funds available	0	100%	0	0	0	0	Quarterly
			Develop a quality assurance plan for causes of death processes	Quality Assurance developed									
To increase the numbers of deaths reported and registered occurring outside the health facilities	All deaths occurring outside health facilities registered	Increased death registration	Identify and train cadres to be involved in the reporting and registration of community deaths	Identified cadres trained			0	100%	0	0	0	0	Monthly
			Adopt and institutionalize verbal autopsy methodology and tools	Verbal Autopsy institutionalized									

THEMATIC AREA: DEATH REGISTRATION AND CAUSE OF DEATH INFORMATION ..continued...

OBJECTIVES	OUTCOMES	OUTPUTS	ACTIVITY	INDICATORS	MOV	ASSUMPTIONS	BASELINE	TARGET					PERIOD
								YR1	YR2	YR3	YR4	YR5	
To increase the numbers of deaths reported and registered occurring outside the health facilities	All deaths occurring outside health facilities registered	Increased death registration	Train medical personnel on verbal autopsy reporting methodologies	Trained Medical Personnel									
			Sensitize the communities on the importance of registering deaths	Communities sensitized on death registration									
To strengthen linkages between DNRPC, MOCTA, and the health service delivery structures in an effort to improve the birth and death registration coverage		Registers on birth and death registration harmonized and distributed to all data collection points	Printing of revised birth and death registers	2000 birth and 2000 death registers printed by December 2013	Printed registers	Funds available	TBA	100%	0	0	0	0	Monthly
			Distribution and orientation of data collection tools for the health and community health workers on birth and death registration	4000 focal point persons trained	Funds available	Funds available	0	20%	40%	60%	80%	100%	

THEMATIC AREA: USE OF ICTs IN CIVIL REGISTRATION

OBJECTIVES	OUTCOMES	OUTPUTS	ACTIVITY	INDICATORS	MOV	ASSUMPTIONS	BASELINE	TARGET					PERIOD
								YR1	YR2	YR3	YR4	YR5	
Build an automated system for electronic capture, processing, storage and retrieval of CRVS information	Credible and accurate civil registration system	Integrated CRVS framework	Business Process Re-engineering (BPR) of the CRVS process	Number of consultative meetings held	Assessment report	Funds Available		100%					Monthly
			Modeling and design of system	TBA	Reports	Funds Available		100%					Monthly
			Development of the INRIS system	TBA	Automated CRVS prototype	Funds Available		50%	50%				Monthly
		Improved use of ICT	Linking of all system target users	TBA	Automated CRVS prototype	Funds Available		50%	50%				
		Robust linkages created between the civil registry and users of civil registration information	Implementation rolling out of an integrated system	TBA	Web-based application	Funds Available			50%			50%	
			Review and enhancement of the INRIS system	TBA	Reports	Funds Available						100%	
			Digitization and migration of legacy data	TBA	LAN/WAN	Funds Available						100%	
To optimize the use of the mobile technology to enhance vital events notification			Engage mobile internet service providers on the provision of mobile services in vital event notification										
			Develop mobile web applications for remote access via mobile technology										

THEMATIC AREA: USE OF ICTS IN CIVIL REGISTRATION – continued

OBJECTIVES	OUTCOMES	OUTPUTS	ACTIVITY	INDICATORS	MOV	ASSUMPTIONS	BASELINE	TARGET					PERIOD
								YR1	YR2	YR3	YR4	YR5	
To build capacity in DNRPC to manage an automated CRVS system	Capacity to manage an automated CRVS system	ICT Unit / infrastructure	Create an ICT Unit in the department of National Registration	ICT Unit created		Funds Available		100%					Monthly
			Train system administrators, database administrators, network and security specialists and application developers	Personnel trained in appropriate skills		Funds Available		100%					Monthly

THEMATIC AREA: VITAL REGISTRATION FOR REFUGEES AND MINORITY GROUPS

OBJECTIVES	OUTCOMES	OUTPUTS	ACTIVITY	INDICATORS	MOV	ASSUMPTIONS	BASELINE	TARGET					PERIOD
								YR1	YR2	YR3	YR4	YR5	
To increase the birth registration and certification coverage from less than 5% to 60% by 2020.	complete vital events registration for refugees and minority groups	Vital events among refugees and minority groups per day	Establishment of registration centres in refugee camps	Registration centres established		Funds available	0	100%	0	0	0	0	
			Development of standard registration guidelines for refugee application	Manuals on Registration Guidelines printed		Funds available	0	30%	50%	70%	90%	100%	Quarterly
			Training of registration officers	Officers Trained		Funds available							
			Conduct mobile registration	Mobile Registration conducted		Funds available							
To increase the death registration and certification coverage from less than 1% to 50% by 2020	Increased death registration for refugees and minority groups	Death registration	Establishment of registration centres in refugee camps			Funds available	0	100%					Quarterly
			Development of standard registration guidelines for refugee application			Funds available	0	100%					Quarterly
			Training of registration officers			Funds available	0	4	4	4	4	4	Quarterly
			Apply verbal autopsy in mobile death registration										
To increase awareness on the need to register vital events among refugee populations	Increased vital registration for refugees and minority groups	Increased awareness among refugees population	Formulate an advocacy and communications strategy for refugees										

THEMATIC AREA: VITAL STATISTICS FROM CIVIL REGISTRATION

OBJECTIVES	OUTCOMES	OUTPUTS	ACTIVITY	INDICATORS	MOV	ASSUMPTIONS	BASELINE	TARGET					PERIOD
								YR1	YR2	YR3	YR4	YR5	
To improve the collection of vital events information using internationally acceptable data collection tools.	complete vital statistics based on the civil registration system	Standardize data collection tools	Review and harmonize civil registration data collection forms and registers against international standards	Standardized data collection tools aligned to international standards									
			Set up data collection and processing systems	Data collection and processing systems									
			Printing of data collection instruments	Data collection instruments									
			Institutionalize community vital registration with VA	VA institutionalized									
To improve publication of vital statistics reports from civil registration system	Enhanced corroboration between agencies responsible for civil registration for improved and sustained vital statistics to guide policy and planning	Increased collection of vital statistics	Develop template for quarterly and annual publication of vital statistics for national provincial and district levels	Quarterly and Annual Reporting templates	Reporting templates	Funds available						Monthly	
			Set and agree on dates and methods for quarterly and annual publication of vital statistics at national provincial and district levels	Scheduled reporting of statistics	Reporting schedule	Structures and human resource in place	0	10%	50%	70%	90%	100%	Annual
			Training of CSO and DNRPC regional staff on compiling vital statistics information from Civil Registration	Officers capacitated to handle VS reporting	Training of Regional staff	Funds available	0	10%	50%	70%	90%	100%	Annual

THEMATIC AREA: ADVOCACY, COMMUNICATION AND AWARENESS ...Continued.....

OBJECTIVES	OUTCOMES	OUTPUTS	ACTIVITY	INDICATORS	MOV	ASSUMPTIONS	BASELINE	TARGET					PERIOD
								YR1	YR2	YR3	YR4	YR5	
To build capacity within the DNRPC to undertake advocacy and communication activities	increased the demand for civil registration by	Communities mobilized to appreciate and demand for civil registration	Create a community and public relations unit within DNRPC	Number of IEC materials developed	IEC packages	Funds available	0	4	4	4	4	4	Quarterly
To formulate a Communication and Advocacy strategy		Advocacy and capacity building meetings conducted for policy makers	Develop a communication, advocacy and awareness creation strategy	Number of meetings held	Minutes of meetings	Funds available	0	4	4	4	4	4	Quarterly
			Conduct advocacy, communication and awareness activities	Number of capacity building meetings held	Reports	Funds available	0	2	2	2	2	2	Bi-annual
To mainstream Civil registration in the Zambian school curriculum		Lobby for the inclusion of Civil Registration topics in civic education through Curriculum Development Centre (CDC)	Awareness creation through exhibitions	Number of exhibitions where awareness has been created	Reports	Funds available	0	113	113	113	113	113	Annual

THEMATIC AREA: POLICY AND LEGAL FRAMEWORK

OBJECTIVES	OUTCOMES	OUTPUTS	ACTIVITY	INDICATORS	MOV	ASSUMPTIONS	BASELINE	TARGET					PERIOD
								YR1	YR2	YR3	YR4	YR5	
To create legal framework that meets regional and international standards and compels compulsory registration and compliance.	An enabling legal framework that enhances efficiency and effectiveness in civil registration	Pieces of legislation related to civil registration amended	Review, amend and harmonize the relevant pieces of legislation related to CRVS	Number of meetings held	Minutes	Funds available	0	2	0	0	0	0	Quarterly
			Draft a Statutory Instrument to amend registration procedures, forms and decentralize certification.	Draft Statutory instrument	Follow ups	Funds available, consultative meetings complete	0	6	0	0	0	0	Annual
To strengthen the DNRPC organizational capacity in the CRVS legal framework	CRVS Legal personnel	Legal Unit under DNRPC	Lobby for the establishment of the legal department	Draft policy	Draft policy	Funds available	0	0	1	0	0	0	Quarter
			Build capacity through in-house workshops on CRVS related legal matters	Number of meetings held	Minutes	Funds available, draft national policy available	0	0	1	0	0	0	Quarter

8.0 IMPLEMENTATION PLAN

IMPLEMENTATION PLAN FOR THE NATIONAL STRATEGIC ACTION PLAN FOR IMPROVING THE CIVIL REGISTRATION AND VITAL STATISTICS																								
No	Activity	Budget (ZKW)	Budget (USD)	Implementation timeframe																				Funder
				2014				2015				2016				2017				2018				
				Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	
	ORGANISATIONAL AND MANAGEMENT ISSUES																							
1	Conduct a skills gap analysis	40,000	6,349																					
2	Conduct an Internal organizational structure review to include the ICT, Legal, M&E and Communications and PR Units	60,000	9,524				X	X	X															
3	Engage MDD to validate proposed organizational structure	20,000	3,175				X	X	X															
4	Submission of proposed structure to Cabinet Office	0	0							X														
5	Open up registration centres at sub district level	25,000	3,968	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
6	Production and distribution of desk manuals for recommended processes	120,000	19,048					X	X	X														
8	Create multi-sectoral CRVS committees at provincial and district levels	0	0				X																	
9	Review and print the service charters to respond to the results of BPR and ICT applications	35,000	5,556										X											
	Sub Total	300,000	47,619																					

	DEATH REGISTRATION AND CAUSES OF DEATH INFORMATION	Budget (ZKW)	Budget (USD)	2014				2015				2016				2017				2018			
				Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
10	Develop a training module on the cause of death certification and assignment of ICD codes	150,000	23,810					X															
11	Lobby for the inclusion of ICD training module in the medical staff curriculum	0	0						X														
12	Institute a training plan for certification of causes of death by medical personnel	1,000,000	158,730						X	X	X	X	X	X	X	X	X	X	X	X	X	X	
13	Procure and distribute updated ICD materials to health facilities and other institutions	9,000,000	1,428,571						X	X	X	X	X	X	X	X	X	X	X	X	X	X	
14	Develop a quality assurance plan for causes of death processes	30,000	4,762						X	X													
15	Adopt and institutionalize verbal autopsy methodology and tools	1,000,000	158,730				X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
16	Train medical and other personnel on verbal autopsy reporting methodologies	400,000	63,492				X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
17	Sensitize the communities on the importance of registering deaths	1,000,000	158,730	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
	Sub Total	12,580,000	1,996,825																				

	VITAL EVENTS REGISTRATION FOR REFUGEES AND MINORITY GROUPS	Budget (ZKW)	Budget (USD)	2014				2015				2016				2017				2018			
				Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
18	Establishment of registration centres in refugee camps	80,000	12,698					X	X														
19	Development and printing of standard registration guidelines for refugee applications	20,000	3,175				X																
20	Training of registration officers in registration skills	50,000	7,937					X	X														
21	Training of registration officers in verbal autopsy	105,000	16,667					X	X														
22	Apply verbal autopsy in death registration among refugee community	100,947	16,023							X	X	X	X	X	X	X	X	X	X	X	X	X	X
23	Formulate an advocacy and communications strategy for refugees	100,000	15,873					X															
24	Conduct communication, advocacy and awareness campaigns in refugee camps	200,000	31,746						X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
	Sub Total	655,947	104,119																				

	USE OF ICTS IN CIVIL REGISTRATION	Budget (ZKW)	Budget (USD)	2014				2015				2016				2017				2018			
				Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
25	Business Process Re – engineering (BPR) of the CRVS process. (completed)	0	0																				
26	Modeling and design of system-completed	0	0																				
27	Development of the INRIS system-completed	0	0																				
28	Linking of all system target users	6,300,000	1,000,000							X	X	X	X	X	X	X	X	X	X	X	X	X	X
29	Implementation and rolling out of an integrated system	25,200,000	4,000,000							X	X	X	X	X	X	X	X	X	X	X	X	X	X
30	Review and enhancement of the INRIS system	3,150,000	500,000									X	X	X	X	X	X	X	X	X	X	X	X
31	Digitization and migration of legacy data	3,600,000	571,429					X	X	X	X	X	X	X									
32	Engage mobile internet service providers on the provision of mobile services in vital event notification	0	0										X	X									
33	Develop mobile web applications for remote access via mobile technology	220,000	34,921										X	X	X								
34	Train system and database administrators, network security specialists and application developers and all other ICT staff	1,000,000	158,730										X	X	X	X	X	X	X	X	X	X	X
35	Design and build appropriate physical infrastructure for provincial and district offices to house ICT infrastructure.	100,000,000	15,873,016				X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
	Sub Total	139,470,000	22,138,095																				

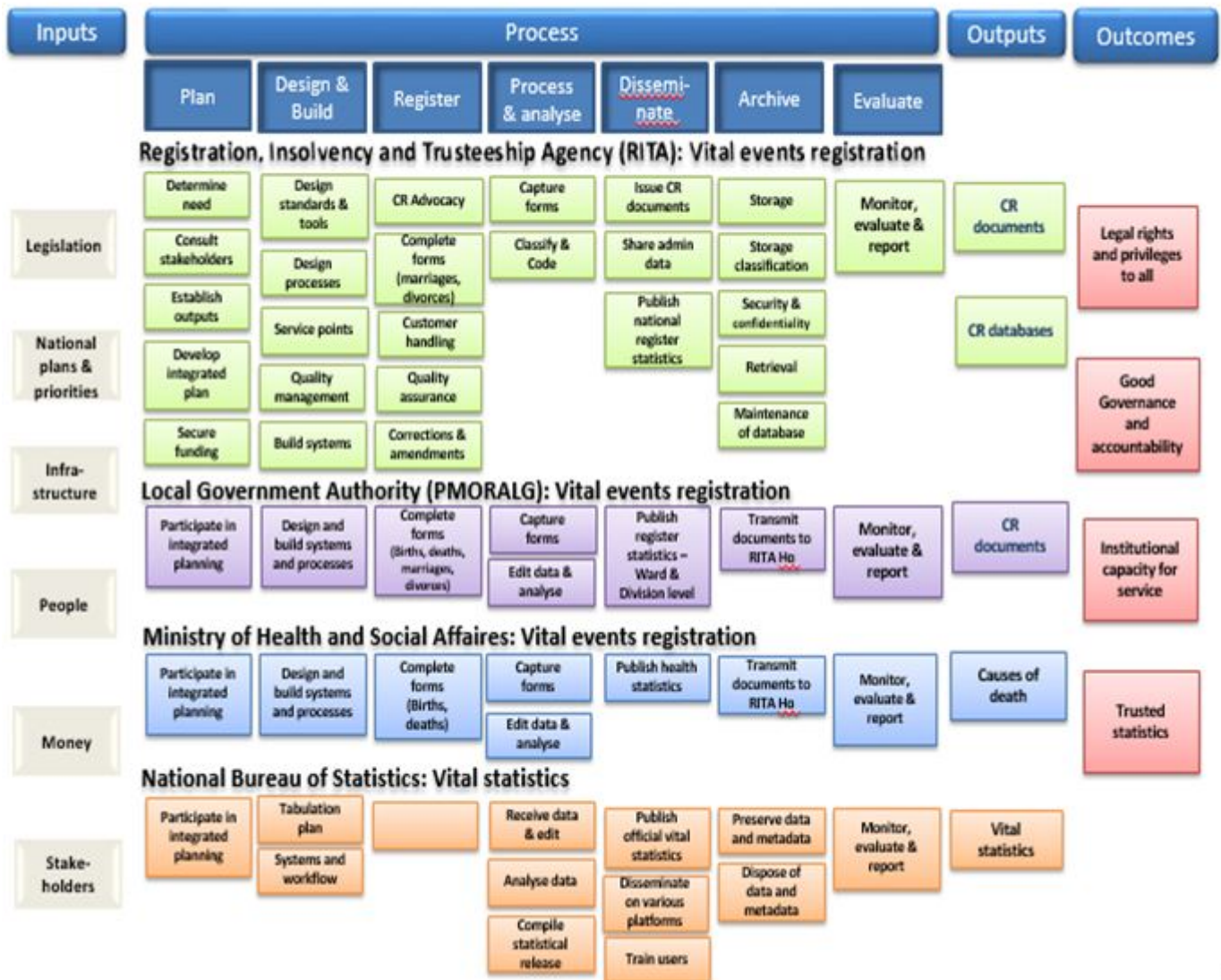
	VITAL STATISTICS FROM CIVIL REGISTRATION	Budget (ZKW)	Budget (USD)	2014				2015				2016				2017				2018			
				Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
36	Review and harmonize civil registration data collection forms and registers against international standards	60,000	9,524			X	X																
37	Set up data collection and processing systems	144,000	22,857			X	X	X	X														
38	Printing of data collection instruments	4,000,000	634,921					X	X														
39	Institutionalize Sample vital registration with verbal autopsy (SAVVY)	3,000,000	476,190					X	X	X	X	X	X										
40	Develop template for quarterly and annual publication of vital statistics for national provincial and district levels	20,000	3,175				X																
41	Hold meetings to set a schedule and methods for quarterly and annual publication of vital statistics at national provincial and district levels	0	0			X																	
42	Training of CSO and DNRPC regional staff on compiling vital statistics information from Civil Registration	545,000	86,508					X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
	Sub Total	7,769,000	1,233,175																				

	COMMUNICATION, AWARENESS CREATION AND PUBLIC EDUCATION	Budget (ZKW)	Budget (USD)	2014				2015				2016				2017				2018			
				Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
43	Develop a communication, advocacy and awareness creation strategy	100,000	15,873			X	X																
44	Conduct communication, advocacy and awareness campaigns	1,000,000	158,730					X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
45	Lobby for the inclusion of Civil Registration topics in civic education through Curriculum Development Centre (CDC)	0	0					X	X	X	X												
	Sub Total	1,100,000	174,603																				
POLICY AND LEGAL FRAMEWORK				2014				2015				2016				2017				2018			
46	Review, amend and harmonize the relevant pieces of legislation related to CRVS	1,500,000	238,095	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X				
47	Draft a Statutory Instrument to amend registration procedures, forms and decentralize certification.	80,000	12,698			X	X	X	X														
48	Build capacity through in-house workshops on CRVS related legal matters	150,000	23,810							X	X	X	X	X	X	X	X	X	X	X	X	X	
	Sub Total	1,730,000	274,603																				
	Grand Total	163,604,947	25,969,039																				
FINANCING GAP				Budget (ZKW)	Budget (USD)																		
Total Estimated Funds Needed over the Five Year Period				163,604,947	25,969,039																		
Less Estimated Annual Government Financing				27,141,406	4,308,160																		
Less Estimated Centre for Disease Control Financing for Community Vital Registration				41,580,000	6,600,000																		
Less Estimated UNICEF Support to Birth Registration				3,500,000	555,556																		
Estimated Financing Gap				91,383,542	14,505,324																		

Vision

A Zambia where all vital events are registered and vital statistics derived therefrom by the year 2030

Figure 6. Civil Registration and Vital Statistics To-Be Value Chain



Business Case for CRVS Digitisation

Context

Provide details of the CRVS context as identified in CRVS strategy document e.g. why is digitisation required?

Long-Term Vision for CRVS Digitisation

Insert long-term vision documented in Preparation 1: Define a Long-Term Vision for CRVS Digitisation.

Impact of not digitising CRVS systems

Complete the below table, Identifying the key risks of not digitising CRVS systems and what impact these risks would have on realising the objectives outlined in the CRVS Strategic Plan.

Risk	Impact
<i>e.g. Complex, bureaucratic administrative processes</i>	<i>e.g. Operational costs of CRVS remain high (cost per registration)</i>

Timeframes

Update the below table to reflect expected timeframes of planned digitisation activities.

Digitisation Phase	Duration
Analysis & Design	
System Development and Testing	
Pilot Implementation	
Full Implementation	

Costings

Complete the below costing template to indicate how much digitisation activities will cost. *The section from System Development and Testing onwards is completed during Implementation Planning Phase One. Document the CRVS Digitisation Implementation Plan.*

Item	Year 1	Year 2	Year 3
Analysis & Design			
Stakeholder workshops <i>Workshops to support analysis and design activities with key stakeholders</i>			
Research e.g. baseline survey and assessment activities <i>Research conducted to inform the design of the new CRVS system</i>			
Internal Resources			

Project Manager <i>Full time resource to oversee all digitisation activities</i>			
Civil Registration SME <i>Full time resource to provide expert knowledge on existing operations and CRVS requirements</i>			
Technical Assistance			
Business Analyst <i>Full time resource who specialises in analysing and re-designing business processes and operations</i>			
Solution Architect <i>Full time resource who specialises in analysing, designing and implementing information systems</i>			
System Development & Testing			
Software Development & Testing <i>Design, build and test of new CRVS System</i>			
Infrastructure Upgrades <i>Required infrastructure upgrades to support new CRVS system e.g. data centre, network connectivity</i>			
Hardware (for test and live environments) <i>E.g. application/web and database servers</i>			
Software Licenses <i>Operating System, application and database licenses</i>			
Training <i>Development of training curriculum materials and plan, training of trainers</i>			
Change Management <i>Development and implementation of change management plan</i>			
Monitoring & Evaluation Framework <i>Design and implementation of a monitoring and evaluation framework</i>			
Pilot Implementation <i>Limited deployment to test solution & deployment approach before scale-up</i>			
Physical infrastructure upgrade of local registration offices <i>E.g. Desktop computers, printer/scanners, network connectivity to support digital CRVS processes, software licenses, mobile phones, Civil Registration Materials</i>			
Deployment <i>Deployment of new CRVS systems and processes, implementation of change management plan, training of local resources, M&E</i>			
Operating/Running Costs <i>Cost of running and maintaining the new CRVS system and processes</i>			
Full Implementation <i>Scale-up of solution across the country</i>			

Project Initiation Document Template

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[Note. All text in italics provides guidance on how to complete this template. It should be removed from the document prior to being made public.]

Purpose

Complete the below template, providing a clear statement of the scope, objectives and participants in the CRVS Digitisation Project.

The below Project Charter clearly outlines the scope, objectives and participants of the Analysis & Design Phase of the CRVS Digitisation Project. The scope defined here will be used throughout the Analysis & Design Phase to limit the occurrence of scope creep. The document will be reviewed and updated at the beginning of the Implementation Phase in order to reflect the shift in focus of activities and required project changes. To change the scope of the CRVS Digitisation Project, a Change Request will need to be raised and be reviewed and validated by the relevant project governance body (as defined in *Roles and Responsibilities* below).

The Project Charter is a document that formally authorizes the existence of a project, and provides the project manager with the authority to apply resources to project activities. The purpose of the Charter is to obtain formal approval on the goals, objectives, scope and structure of the proposed project, including:

- the project mandate, objectives and outcomes, benefits, scope and risks;*
- the project deliverables, schedule, milestones, and estimated costs; and*
- the project organization, governance structure and stakeholders.*

Document Change Control

This section serves to control the development and distribution of revisions to the Project Charter. It should be used together with a change management process and a document management system. It is recommended that changes to the Charter are documented only by adding annexes to the original Project Charter. This will keep an accurate history of the original document that was first approved.

Revision History			
Version No	Date	Brief Description of Change	Author

2. Project Overview

2.1 Project Summary

This section provides an overview of all activities within the Analysis & Design phase, highlighting the significant points of interest to the reader. It includes all of the information required for approval by the key stakeholders. The summary should also include some background information on the project that includes the reason/s for creating the project and mention the key stakeholders who will benefit from the project results:

- *What mandate exists that requires you to digitise your CRVS processes; who granted this mandate?*
- *How and why the project was initiated?*
- *Who will fund this project?*
- *Who will use the final deliverable of the project?*
- *Who will be impacted by the project?*

2.2 Project Goals, Outcomes and Objectives

This section describes the project goals and links each of them to related measurable project objectives. In addition, outcomes to be derived from the project goals and objectives should be presented as outlined in the CRVS digitisation business case. Measurement criteria, which will be used to confirm that an objective and the outcome have been reached, must also be provided.

Keep in mind that goals are high-level statements, usually broad general intentions that are typically intangible or abstract. Project objectives are concrete and measurement criteria usually confirm if an objective has been met. Outcomes are results expected at the end of the project.

Add rows as required.

No.	Goals	Objectives	Outcomes
1		.	.
2		.	.
3		.	.

2.3 Project Scope

This is a high-level description of the features and functions that characterize what is expected to be delivered by the project i.e. each activity included in the Analysis & Design Phase of this Guidebook.

Activities In Scope	Activities Out of Scope
1.	1.
2.	2.
3.	3.

2.6 Project Cost Estimate and Source of Funding

2.6.1 Project Cost Estimate

This is where you record a summary of cost estimates for all of the resources (human, material and financial) required to produce the deliverables and meet the objectives established for the project.

2.6.2 Source of Funding

State the various sources of funding that will be used to support the project. It should be clear to the project sponsor and the project manager where the funds come from and the level of resources committed to this project.

2.7 Dependencies

This is where you list dependencies for the project e.g. a predecessor/successor relationship exists with another project (MOU, partnerships, etc.): A related project expects a deliverable from your project; this project expects a deliverable from a related project; etc.

Dependency Description	Critical Date	Contact

2.8 Project Risks & Issues

Identify key risks and issues that affect the Analysis and Design Phase of the CRVS Digitisation Project. Each risk and issue should be ranked in terms of probability and impact and a mitigation action should be documented in order to lessen the impact or lower the probability of the risk/issue taking place. The table below can be used to log these risks and should be maintained throughout the process.

No.	Risk Description	Probability (H/M/L)	Impact (H/M/L)	Planned Mitigation	Owner
1					
2					
3					

4. Project Management Structure

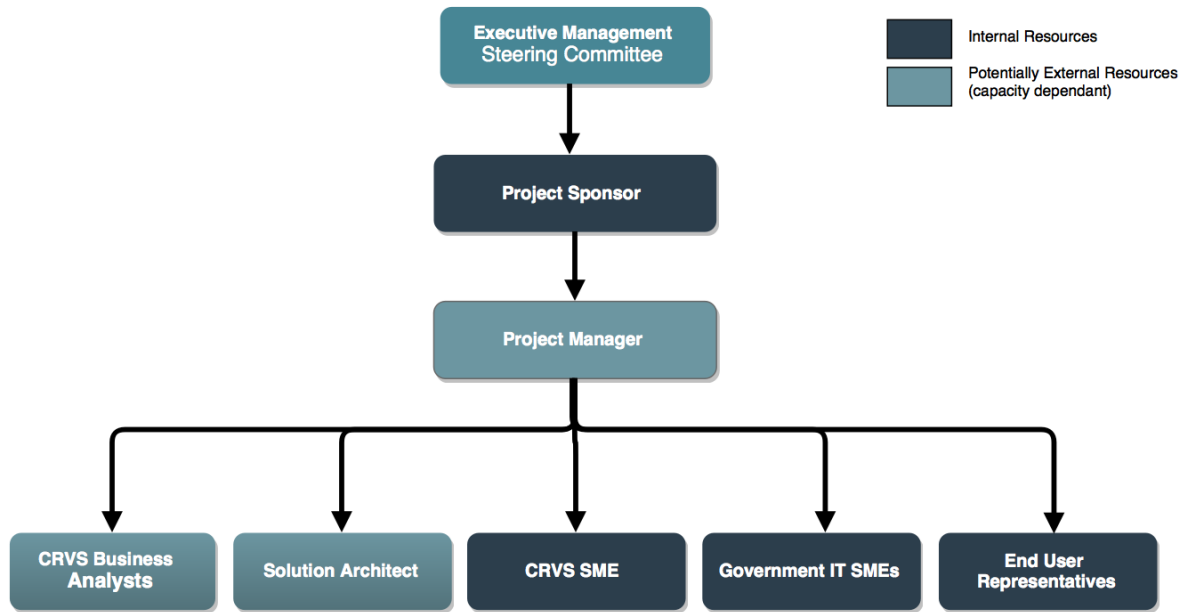
Add, edit, and/or update the below table, identifying key resources who will be responsible for clearly defined activities within the project.

All actors that will work in the CRVS Digitisation Project Team during the Design and Analysis phase are listed below.

Role	Description
Project Manager	Responsible for the day to day direction of the project. Communicates with governance team and stakeholder groups. Must ensure that the project is delivered within the agreed time, budget and scope.
CRVS Business Analyst	Works closely with identified stakeholders to document the current business processes and define requirements for the system solution. Identifies areas where business processes can be improved.
CRVS Subject Matter Experts	Represent the beneficiaries and users of the system. Must have an excellent, in-depth understanding of the current business needs and business processes. May be experts in areas such as finance, planning, legal requirements, etc.
Government IT Subject Matter Experts	Must have excellent understanding of the current and planned government IT strategy, IT infrastructure, standards and operations.
Solution Architect	Responsible for the solution architecture, with good understanding of the business, data, application and technology needs and how these can be met.
Project Sponsor	Holds the overall accountability for the project. May be the initiator. Represents the major beneficiary of the system benefits.
End User Representatives	Represent the different types of end users who will interact with the system. Play a vital role in establishing the requirements of the system and providing feedback during requirements validation and system prototyping.

The diagram below shows the project's Project Management Structure, clearly demonstrating relationships between each team member, and reporting and escalation routes that will be used for day to day decision-making activities.

Example Project Team Structure



5. Governance Structure

Update the below table with country-specific titles; this will inform how and when each group should be involved in the project and what responsibilities they should have.

Member	Interests	Objectives
<i>Name of individuals/groups</i>	<i>What interests do they have in being involved in CRVS Digitisation?</i>	<i>What are their specific objectives for the CRVS Digitisation project?</i>
CRVS Steering Committee	Responsible or project governance, decision-making	Improved outcomes from investment. Project implemented on time, within budget, and meeting user requirements
Civil Registration Agency	“Owns” the system	Delivery of a system that meets their requirements with acceptable usability, performance, and flexibility.
Vital Statistics Agency	Improved ability to produce vital statistics derived from vital event data	Delivery of accurate, timely and complete vital statistics from CR system
Ministries of Home Affairs, Finance, Justice, Health, Education, etc.	Improved ability to share data	Improved outcomes from investment. Integration with existing systems. Harmonisation with other projects.
Ministry or department of IT or Planning	Ensuring project complies with policies and standards. Responsible for infrastructure.	Alignment of project with the national eHealth strategy and compliance with policies. Ensuring the project leverages existing investments in IT servers, communication networks, etc.
Project team	Meeting short-term criteria set by project sponsors and	Successful delivery of the project implemented on time, within budget,

	the funding organization.	and meeting requirements.
Subcontractors	Clear terms of reference and acceptance criteria. Timely payments for services delivered.	Deliver products or services according to agreed contracts terms.
Vendors	Establishment of a long-term revenue stream.	Deliver products or services according to agreed contracts terms and build long term relationship.
Funding sponsor		Lasting impact and demonstrated value for money of the project.
Non-governmental organisations	Provide specialist expertise	Successful delivery of the project and realisation of benefits
Citizens	Improved CR service delivery	

The diagram below shows the Project’s Governance Structure, clearly demonstrating relationships between key project stakeholders, and reporting and escalation routes that will be used for key decision-making activities.

Insert organisational design diagram below to represent the Governance structure. This diagram should clearly demonstrate each actor, the relationships between actors, and who/what bodies they report directly into. Consider the questions included in Activity Analysis & Design 1: Initiate CRVS Digitisation Project, Step 3.

5.1 Roles & Responsibilities

Complete the below RACI matrix in order to clearly define each group/actors roles and responsibilities. RACI is an acronym that stands for responsible, accountable, consulted and informed. A RACI chart is a matrix of all the activities or decision making authorities undertaken in an organisation set against all the people or roles.

The RACI matrix below clearly defines each actor's roles and responsibilities within the project's Analysis and Design Phase.

Activities	Champion/spons or	Funder	CRVS Steering Committee	Project Manager	Enterprise Architect	Business Analyst	Gov. IT experts	CRVS SMEs	Ministry Reps.	End User Representatives	NGOs	Citizens
Champion the project at highest level, align interests, resolve potential conflicts	A	I	C	C							C	I
Make key decisions	I	C	A,R	I	I	I	I	I			I	
Manage funding	C	A,R	C	I							I	
Plan, direct and manage day to day activities of the project												
Define the Business Requirements	C	I	C	C		R	C	C	C	C	C	I
Identify relevant stakeholders for the As-Is Assessment	C	C		R		I	C	C	C	C	C	I
Document current CRVS processes and define digitisation requirements	C	I	I	A	C	R	C	C		C	C	
Monitor and report progress	I	I	I	A,R	C,I	C,I	C,I	I			I	
Validate requirements and provide feedback during design, development and prototyping				I	I	R	C	C	I	C	C	




A **RACI** chart identifies who is **R**esponsible, **A**ccountable, **C**onsulted and/or **I**nformed

6. Workplan

Complete the below Workplan, ensuring that realistic timeframes are allowed for each activity.

			Date (w/c)																	
			01-Jan	07-Jan	13-Jan	19-Jan	26-Jan	01-Feb	07-Feb	13-Feb	20-Feb	26-Feb	04-Mar	10-Mar	16-Mar	23-Mar	29-Mar	04-Apr	10-Apr	17-Apr
			Week 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Preparation Phase	Target Completion Date	Status																		
Define a long term vision and roadmap or CRVS Digitisation		Complete																		
Develop a Business Case for CRVS Digitisation		Complete																		
Analysis & Design Phase		Pending																		
Initiate CRVS Digitisation Project		Pending																		
Define the CRVS Business Architecture		Pending																		
Conduct an As-Is Assessment of the CRVS Landscape		Pending																		
Define CRVS Business Requirements		Pending																		
Identify CRVS Digitisation Opportunities		Pending																		
Define Target System Architecture		Pending																		
Document Target CRVS Processes		Pending																		
Define System Requirements		Pending																		
Governance		Pending																		
CRVS Steering Committee Meetings	Ongoing	In Progress																		

Key

-  Section Timeframe
-  Activity
-  Final Deliverable

7. Project Management & Design Tools

Complete below table, listing which tools have been identified to complete specific items.

The below tools should be used for all CRVS Digitisation Project Activities to ensure that common, consistent and high-quality outputs are produced by all actors involved.

Item	Tool
Process Maps	E.g. Bizagi
Word documents	E.g. Microsoft Word
Spreadsheets	E.g. Microsoft Excel
Document Repository	E.g. Dropbox. <i>Provide link to document repository.</i>
Reports	E.g. Microsoft Word
Presentation Materials	E.g. Microsoft Powerpoint

8. Architecture Principles

Edit, add, and/or update the below list of Architectural Principles that will be used to set architectural standards throughout the design and implementation phases.

The Architecture Principles below will be used to inform activities throughout the project lifecycle, providing a clear standard for all project outputs and deliverables.

Architecture Principle	Description
Business Principles	
Primacy of Principles	These principles of information management apply to all organizations within the CRVS enterprise.
Maximize Benefit to the Enterprise	Information management decisions are made to provide maximum benefit to the national CRVS enterprise as a whole.
Business Continuity	CRVS operations are maintained in spite of system interruptions. There must be the capability to continue the business functions regardless of external events. Hardware failure, natural disasters, and data corruption should not be allowed to disrupt or stop CRVS activities. The enterprise business functions must be capable of operating on alternative information delivery mechanisms.
Common Use Applications	Development of applications used across the CRVS system is preferred over the development of similar or duplicative applications which are only provided to a particular organization.
Compliance with Law	CRVS information management processes comply with all relevant laws, policies, and regulations. E.g. e-Governance Framework, Civil Registration Code
Open Standards	CRVS systems utilise open standards that are publicly available for use and can be freely adopted, implemented and extended in order to support flexibility and sustainability.
Data Principles	
Data Integrity	Maintain and assure the accuracy, consistency and

	completeness of CRVS data over its entire life-cycle
Data Security	Data is protected from unauthorized use and disclosure. In addition to the traditional aspects of national security classification, this includes, but is not limited to, protection of pre-decisional, sensitive, source selection-sensitive, and proprietary information
Data is an Asset	CRVS data is an asset that has national value and is managed accordingly.
Data is Shared	Users and citizens have access to the data necessary to perform their duties; therefore, data is shared across CRVS functions and organizations. Timely access to accurate data is essential.
Common Vocabulary and Data Definitions	Data is defined consistently throughout the enterprise, and the definitions are understandable and available to all users.
Application Principles	
Technology Independence	Applications are independent of specific technology choices and therefore can operate on a variety of technology platforms. Otherwise technology, which is subject to continual obsolescence and vendor dependence, becomes the driver rather than the user requirements themselves
Ease-of-Use	Applications are easy to use. The underlying technology is transparent to users, so they can concentrate on tasks at hand.
Technology Principles	
Requirements-Based Change	Changes to applications and technology are made only in response to business needs.
Control Technical Diversity	Technological diversity is controlled to minimize the non-trivial cost of maintaining expertise in and connectivity between multiple processing environments. Limiting the number of supported components will simplify maintainability and reduce costs.
Interoperability	Software and hardware should conform to defined standards that promote interoperability for data, applications, and technology.

Business Process Modelling Guide

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1 Process Modelling¹

Business process models are simplified representations that facilitate understanding of an aspect of a subject area. Process models represent a real-world process with the aim of:

- Understanding the business process by creating the model
- Creating a visible representation and establishing a commonly shared perspective
- Analysing the process flow and performance
- Representing a target process state

¹ The Section on Process Modelling was derived from a presentation prepared by Claudio Machado and the Book: Guide to the Business Process Management Common Body of Knowledge (BPM CBOK), Version 3.0.

1.1 Business Process Definitions

1.1.1 Business Process

- A Business Process is a defined set of activities or behaviours performed by humans or machines to achieve one or more goals
- Triggered by specific events and have one or more outcome that may result in the termination of the process or a handoff to another process
- Composed of a collection of interrelated tasks or activities that solve a particular issue
- End-to-end work that delivers value to customers and may involve crossing any functional boundaries

1.2 Types of Process

1.2.1 Primary (Core) Processes

Represent the essential activities that an organisation performs to fulfil its mission. These make up the value chain where each step adds value to the preceding step as measured by its contribution to the creation or delivery of a product or service, ultimately delivering value.

1.2.2 Support Processes

The processes support the primary processes, often by managing the resources and/or infrastructure required by primary processes. Examples of support processes include information technology management, facilities or capacity management and human resource management.

1.2.3 Management Processes

Management processes are used to measure, monitor and control business activities.

1.3 Levels of Maturity

1.3.1 Level 1 – Incomplete or *ad-hoc*

Processes at this level are typically undocumented and in a state of dynamic change, tending to be driven in an *ad hoc*, uncontrolled and reactive manner by users or events. This provides a chaotic or unstable environment for the processes.

1.3.2 Level 2 – Complete or defined process

Processes at this level are characteristically complete, possibly with consistent results. Process discipline is unlikely to be rigorous, but where it exists, it may help to ensure that existing processes are maintained during times of stress.

1.3.3 Level 3 – Repeatable process

Processes at this level are characterized by sets of defined and documented standard processes established and subject to some degree of improvement over time. These standard processes are in place (i.e., they are the AS-IS processes) and used to establish consistency of process performance across the organization.

1.3.4 Level 4 – Managed process

Processes at this level characteristically use process metrics, management can effectively control the AS-IS process (e.g., for software development). In particular, management can identify ways to adjust and adapt the process to particular projects without measurable losses of quality or deviations from specifications. Process capability is established from this level.

1.3.5 Level 5 – Optimizing process

It is a characteristic of processes at this level that the focus is on continually improving process performance through both incremental and innovative technological changes/improvements.

1.4 Business Process improvement

Business process improvement refers to the process of analysing existing processes and process flows to optimise the processes according to a defined set of criteria. This activity is also sometimes referred to as business process reengineering. It is advisable to conduct business process improvement before automating or digitising processes, to ensure that the automation or digitising process is effective. Business process improvement may also implement the output of the iterative analysis and design cycle and also address organisational change management challenges. The aim is to have continuous improvement and process optimisation.

2 Business Process Modelling Example

Business process modelling (BPM) is a method for representing the processes in a system. An example of how to model the business processes for a CRVS system is illustrated with a generic process in Figure 1, below, based on the Principles and Recommendations for a Vital Statistics System, Revision 3 (UNSD, 2014). The model was drawn in *Bizagi Modeler*².

² www.bizagi.com

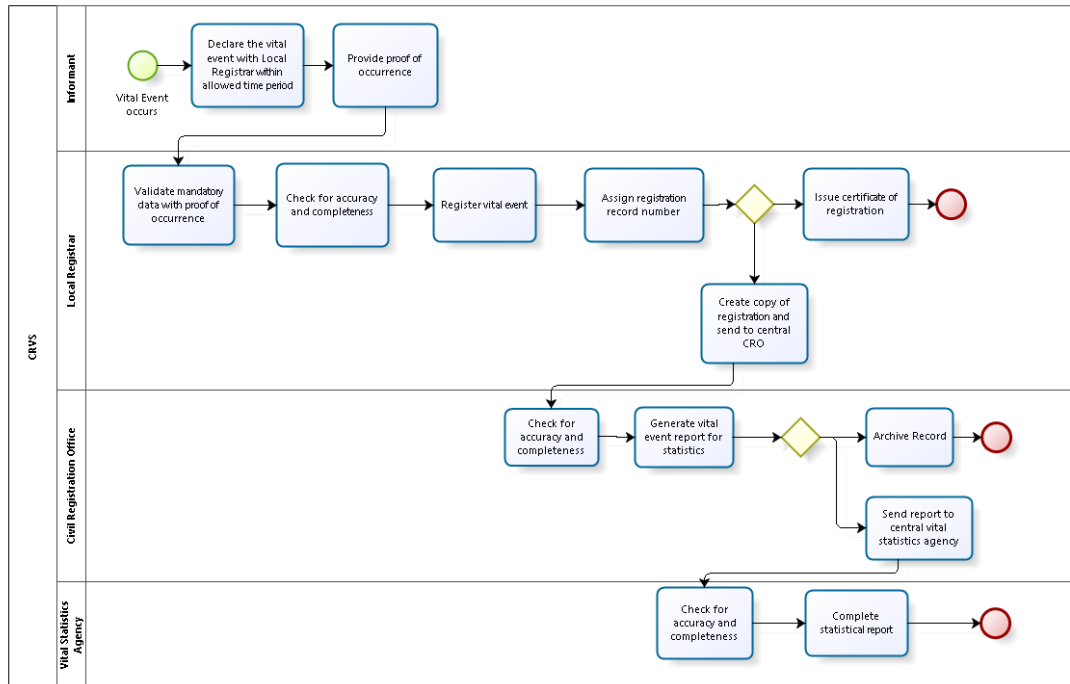


Figure 1. Example CRVS Business Process.

The BPM model should be read as follows (**Modelling Element Names are in Bold** and *Symbols in Italics*):

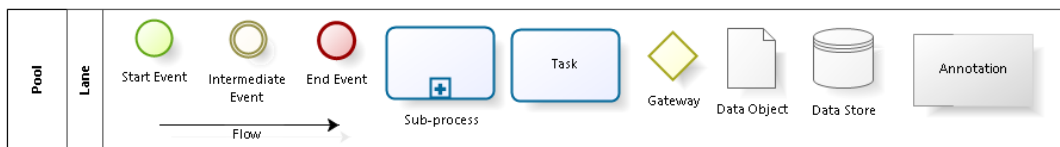
- The overall *Process Name* is **CRVS**. This information is used to label a *Pool* that refers to the overall business process. *Lanes* are used to describe each of the four main actors in the process, ie **Informant**, **Local Registrar**, **Civil Registration Office** and **Vital Statistics Agency**.
- The process begins in the **Informant** *lane* with the *Task* **Declare the Vital Event with Local Registrar within allowed time period**.
- This *Task* is followed by another *Task* by the **Informant** which is to **Provide proof of occurrence** with the relevant references to the reference which is continued through all the tasks.
- The *Process Flow* then switches to the **Local Registrar** *Lane* and the *Task* to **Validate mandatory data with proof of occurrence**. This is followed by *Tasks* to **Check for accuracy and completeness** and then to **Register the Vital Event** and then to **Assign Registration Record Number**. This is then followed by a *Gateway*. A *Gateway* reflects a split into two parallel directions. The first direction leads to the *Task* of **Issue Certificate of Registration**. The second direction leads to the *Task* of **Create Copy of Registration and Send to Central CRO**.
- The *Process Flow* switches to the **Civil Registration Office** *Lane* where there is another **Check for accuracy and completeness** *Task* followed by a *Task* to **Generate statistical report** followed by another *Gateway*. The first direction leads to the *Task* to **Send report to Vital Statistics Agency**

and the second direction leads to **Archive** Record before terminating in a *Stop Event*.

- This *Process Flow* switches to the **Vital Statistics Agency Lane** where there is another **Check for accuracy and completeness** Task followed by a Task to **Complete statistical report** before terminating in a *Stop Event*.

2.1 Business Process Modelling Symbol Key and Definitions

The most common business process modelling symbols are shown and described in the BPM Symbol Key and BPM Definitions, below:



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Modeler

Figure 2. BPM Symbol Key

2.2 Business Process Modelling Definitions

2.2.1 Flow

Task

A Task is an atomic activity that is included within a process. A Task is used when the work in the Process is not broken. Generally, an end-user and/or an application are used to perform the Task.

Sub-Process

A Sub-Process object is an activity that contains other activities (a Process). The Process within the Process is dependent on the parent Process for its instigation and has visibility to the parent's global data. No mapping of data is required.

Start Event

The Start Event indicates where a particular Process will start. In terms of Sequence Flow, the Start Event starts the flow of the Process and, thus, will not have any incoming Sequence Flow – no Sequence Flow can connect to a Start Event.

Intermediate Event

The Intermediate Event indicates where something happens (an Event) somewhere between the start and end of a Process. It will affect the flow of the Process but will not start or (directly) terminate the Process.

End Event

The End Event indicates where a process will end. In terms of Sequence Flow, the End Event ends the flow of the Process and thus, will not have any outgoing Sequence Flow - no Sequence Flow can connect from an End Event.

Gateway

Exclusive Gateways (Decisions) are locations within a business process where the Sequence Flow can take two or more alternative paths. This is basically the “fork in the road” for a Process.

2.2.2 Data

Data Object

Data Objects provide information about how documents, data, and other objects are used and updated during the Process. While the name “Data Object” may imply and electronic document, they can be used to represent many different types of objects, both electronic and physical.

Data Store

A Data Store provides a mechanism for Activities to retrieve or update stored information that will persist beyond the scope of the process.

2.2.3 Artefacts

Group

A Group object is an Artefact that provides a visual mechanism to group elements of a diagram informally.

Annotation

Text Annotations are a mechanism for a modeller to provide additional information for the reader of a BPMN diagram.

2.2.4 SwimLanes

Pool

A Pool represents a Participant in the process. A Participant can be a specific business entity (eg a company) or can be a more general business role (eg a buyer, seller or manufacturer).

Lane

A Lane is a sub-partition within a Pool.

2.3 Business Process Additional Information

For each BPM documented, each process step should be documented with supplementary information (as per table below). The BPM and associated table provide a comprehensive view and description of the process.

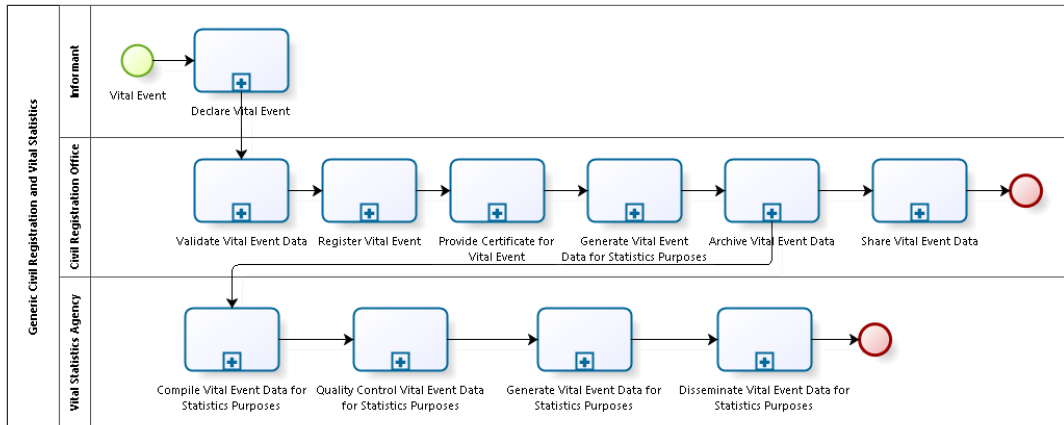
Name of process: Register Vital Event		
Step	Actor	Additional Information
e.g. Declare Vital Event	e.g. Informant	e.g. Informant permitted to be x, y and x by law (insert law) Declaration of vital event must take place at [location x] within a specified number of dates after the event has taken place ...

Table 1. Generic CRVS BPM Additional Information

3 Generic CRVS Business Processes

All CRVS business processes include a number of generic steps that should be included in one form or another. When modelling your processes, assess whether contextual versions of the steps listed below should be included in the model, as per Principles and Recommendations for a Vital Statistics System, Revision 3 (UNSD, 2014):

1. Civil Registration
 - 1.1. Declare Vital Event (including Notify and Record Vital Event)
 - 1.2. Validate Vital Event Data
 - 1.3. Register Vital Event
 - 1.4. Provide Certificate for Vital Event
 - 1.5. Generate Vital Event Data for Statistics Purposes
 - 1.6. Archive Vital Event Data
 - 1.7. Share Vital Event Data
2. Vital Statistics
 - 2.1. Compile Vital Event Data for Statistics Purposes
 - 2.2. Quality Control Vital Event Data for Statistics Purposes
 - 2.3. Generate Vital Event Data for Statistics Purposes
 - 2.4. Disseminate Vital Event Data for Statistics Purposes



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Modeller

Figure 3. Generic CRVS Business Model

3.1 Generic Civil Registration Processes

3.1.1 Declare Vital Event

Civil registrars can legally register vital events only on the basis of an informant's verbal or written declaration of the event [UNSD, 2014]. The informant is the individual or institution who, as required by law, reports or witnesses to the local registrar the occurrence of the vital event, its characteristics, the persons directly concerned with the event and their characteristics (UNSD, 2014).

3.1.2 Validate Vital Event Data

Validation (verification) refers to the methods that can be used to assure the accuracy, validity and completeness of reported vital event data (UNSD, 1998c).

3.1.3 Register Vital Event

A vital event registration record registers information on the occurrence of vital events as well as the persons related to the event. In the process of registration, a local registrar, prepares two documents, a vital event registration record and the corresponding statistical report (UNSD, 2014).

3.1.3.1 *Amend (Correct) Vital Record*

Amendments (corrections) to vital records refer to the process of altering an existing record to accommodate a clerical or other error. Corrections involving legal aspects of registration, such as dates of occurrence, usually require legal intervention while correction of simple clerical errors should be permitted without legal intervention. The legal system should specify the authority to make amendments and under what circumstances (UNSD, 2014).

3.1.4 Certify Vital Event

Certification refers to the process of issuing certificates of Vital Events for legal, administrative and other purposes (UNSD, 2014). The certificates are legal proof of the occurrence of these vital events and provide statistical information to various government agencies and the general public.

3.1.5 Generate Vital Event Data

Generation refers to the process of compiling data from individual vital statistics records for the purposes of internal reporting (within the civil registration service) or for sending to the agency responsible for compiling vital statistics. Generation may also include linking records within the vital registration system, eg linking infant death records to birth records by matching records infant deaths in the death file with the corresponding record in the live-birth file, which allows information from the birth record, such as birth weight, gestational age and other characteristics of mother and infant at birth, to be combined with information from the death record, especially the cause(s) of death (UNSD, 2014).

3.1.6 Archive Vital Event Data

Archiving refers to the process of storing and preserving vital event records. This includes both source documents and related or supporting documents both in paper and digital format (UNSD, 2014).

3.1.7 Share Vital Event Data

Vital event data may be shared with other organisations, such as agencies responsible for maintaining the population register. Vital event data, such as marriages and divorces may also be shared, where they are maintained by a separate agency or ministry (eg justice).

4 Mapping Generic CRVS Processes to the Reference Guideline

Table 2 shows the mapping between the generic high level business processes and paragraph headings from the Principles and Recommendations (UNSD, 2014). This mapping assists with guidance in terms of best practices for defining specific CRVS processes.

Principles and Recommendations for a Vital Statistics System, Revision 3			Civil Registration						
			Declare	Validate	Register	Certify	Generate	Share	Archive
	D. Principles of a vital statistics system	Clauses							
	5. Designation of a legally responsible informant for each type of event	349-355	x						
F.	The Civil Registration	356-							

	Process	357							
1.	Place of registration	358-360	x						
2.	Time allowed for registration	361-363		x					
3.	Cost of current registration	364			x				
4.	Proof required for the registration of vital events	365-368		x					
5.	Provision for late and delayed registration	369-373		x					
6.	The vital event registration record	374-377			x				
6.(a)	Ways and means of preparing records of vital events	378-382			x				
6.(b)	Storing and preserving records of vital events	383-392							x
6.(b)(i)	Space and storage considerations	383-384							x
6.(b)(ii)	Preservation methods and safety	385-391							x
6.(b)(iii)	Need for central storage and preservation of vital records	392							x
6.(c)	Storage and preservation of other related registration documents	393							x
6.(d)	Recommended policies for the release of information on individual vital event records	394-396						x	
6.(e)	Content of the vital record for legal purposes	397-399			x				
6.(f)	Numbering vital records	400-403			x				
7.	Complementary notations (additions) in vital event registration records	404-409			x				
8.	Amendments (corrections) to registration records	410-414			x				
9.	Recommendations for issuing certified copies of vital event registration records	415-418				x			
10.	Linkages of vital records within the registration system	419-422					x		
11.	Linkages of vital records with records of other systems	423-426					x		x
12.	Recording, reporting and collecting civil registration data for statistical purposes	427-448					x		
12.(a)	Types of statistical reporting forms and content	427-434					x		
12.(b)	The statistical reporting process						x		
12.(b)(i)	Principles of statistical	435-					x		

	reporting	444							
12.(b)(ii)	Improvement of completeness, accuracy and timeliness for statistical purposes	445-448					x		

Table 2. Mapping between Generic Business Processes and main sections in the Principles and Recommendations (UNSD, 2014)

5 Common Business Process Modelling Software Tools

A number of different software tools are useful for modelling business processes and some of these are listed in Table 3, below. In general, we have listed tools that are simple to use, commonly used and either free or readily-available and affordable.

Name	Description	License	Platform	Location
Bizagi Studio	Simple flowcharting tool	FOSS	Microsoft	www.bizagi.com
Bonita Studio	BPMN 1.1 modelling tool	FOSS	Open	www.bonita.com
Draw.io	Simple flowcharting tool	FOSS	SAAS	https://draw.io
Enterprise Architect	Database driven design tool	Sparx Systems	Microsoft	www.sparxsystems.com
Google Drawings	Simple drawing tool	FOSS	SAAS	https://docs.google.com/drawings
Lucid Chart	Powerful drawing tool	Lucid	Open/SAAS	www.lucidchart.com
Visio	Powerful drawing tool	Microsoft	Microsoft	https://products.office.com/en-us/visio/
BPMN Stencils	BPMN 2.0 models in Visio	Orbus	Microsoft	www.orbussoftware.com

Key: FOSS – Free and Open Source Software; SAAS – Software as a Service

Table 3. Details of Common Business Process Modelling Software Applications.

CRVS Business Architecture [INSERT NAME OF COUNTRY]

CRVS Business Context

Mandate
What is your organisation's mandate?
Objectives
What are the specific objectives of your organisation?
Operational Drivers
What are your operational drivers? E.g. Cost-reduction, improved service delivery etc.

Organisational Context

Actor	Responsibility
e.g. Ministry of Health	e.g Responsible for the registration of children born in medical facilities

- Insert organisation structure diagram including:
 - Overall Responsible Ministry.
 - Specific CRVS groups e.g. Steering Committee.
 - All departments that act within the CRVS context.
 - Relationships between relevant departments.

CRVS Legal & Policy Foundations

Legal & Policy Provision	Description
e.g. Specific constitutional provisions	
Specific legislation that provides the foundations for CRVS e.g. Births and Deaths Act	

CRVS Services

Service	Process	Client	Performance Indicator	Target
e.g. Registration, Production of Vital Statistics etc.	e.g. Birth, death, marriage	e.g. Public, National Statistics Office	e.g. % of all children registered within 30 days.	e.g. 95%

CRVS Programmes

Title	Objectives
e.g. Digitisation of CRVS Systems; Increasing demand for Birth Registration	

CRVS Processes

Primary (Core) Processes

- Represent the essential activities an organisation performs to fulfill its mission
- Make up the value chain where each step adds value to the preceding step as measured by its contribution to the creation or delivery of a product or service, ultimately delivering value

Support Processes

- Support primary processes, often by managing resources and/or infrastructure required by primary processes
- Examples of support processes include information technology management, facilities or capacity management and human resource management

Management Processes

- Used to measure, monitor and control business activities

Business Process	Description
e.g. Birth Registration (current, late, delayed)	e.g. The end-to-end birth registration process, from notification to certification and sharing of vital statistics data with authorised agencies

CRVS Business Requirements

Requirements
1. e.g. Citizens must be able to access registration services within the community
2.
3.
4.
5.
6.
7.
8.
9.
10.

CRS Business Architecture

Constitution

- 13 (1)" Citizenship may be acquired by birth or registration"
- 14 (1)" A person is a citizen by birth if on the day of the persons birth, whether or not the person is born in Kenya, either the mother or father of the person is a citizen"
- Article 12 (1) Every citizen is entitled to a Kenyan passport and any document of registration or identification issued by the state to citizens
- Article 53 (1) Every child has a right to a name and nationality from birth

Legal Framework

- Birth & Death Registration Act, Cap 149
- Kenya Citizens and Foreign National Management Service Act
- National Registration & Identification Bill
- Access to Information Bill
- Data Protection Bill

Organisational Context

Ministry of Interior & Coordination of National Government

Directorate of immigration and registration of persons

IPRS

NRB

DRA

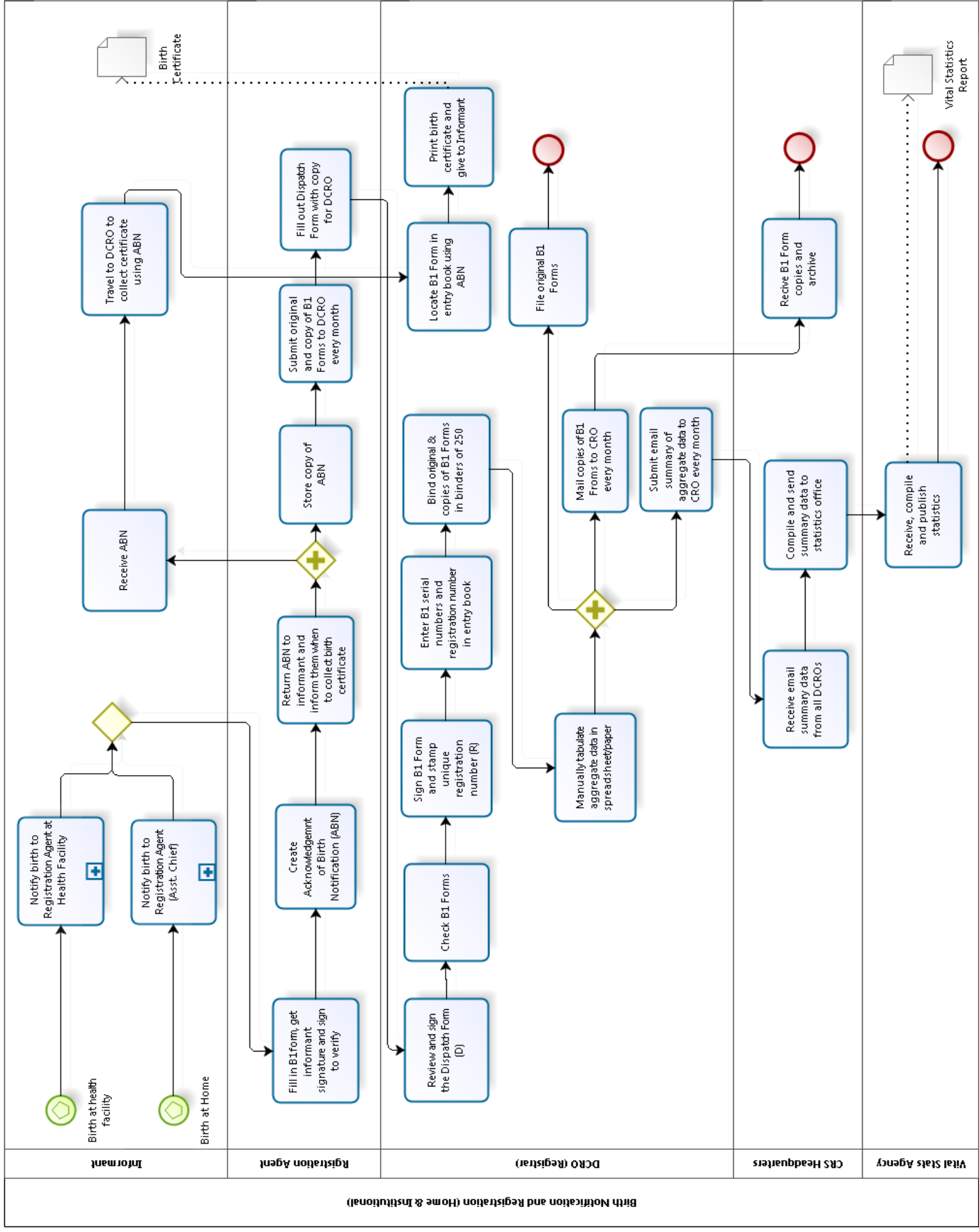
DIS

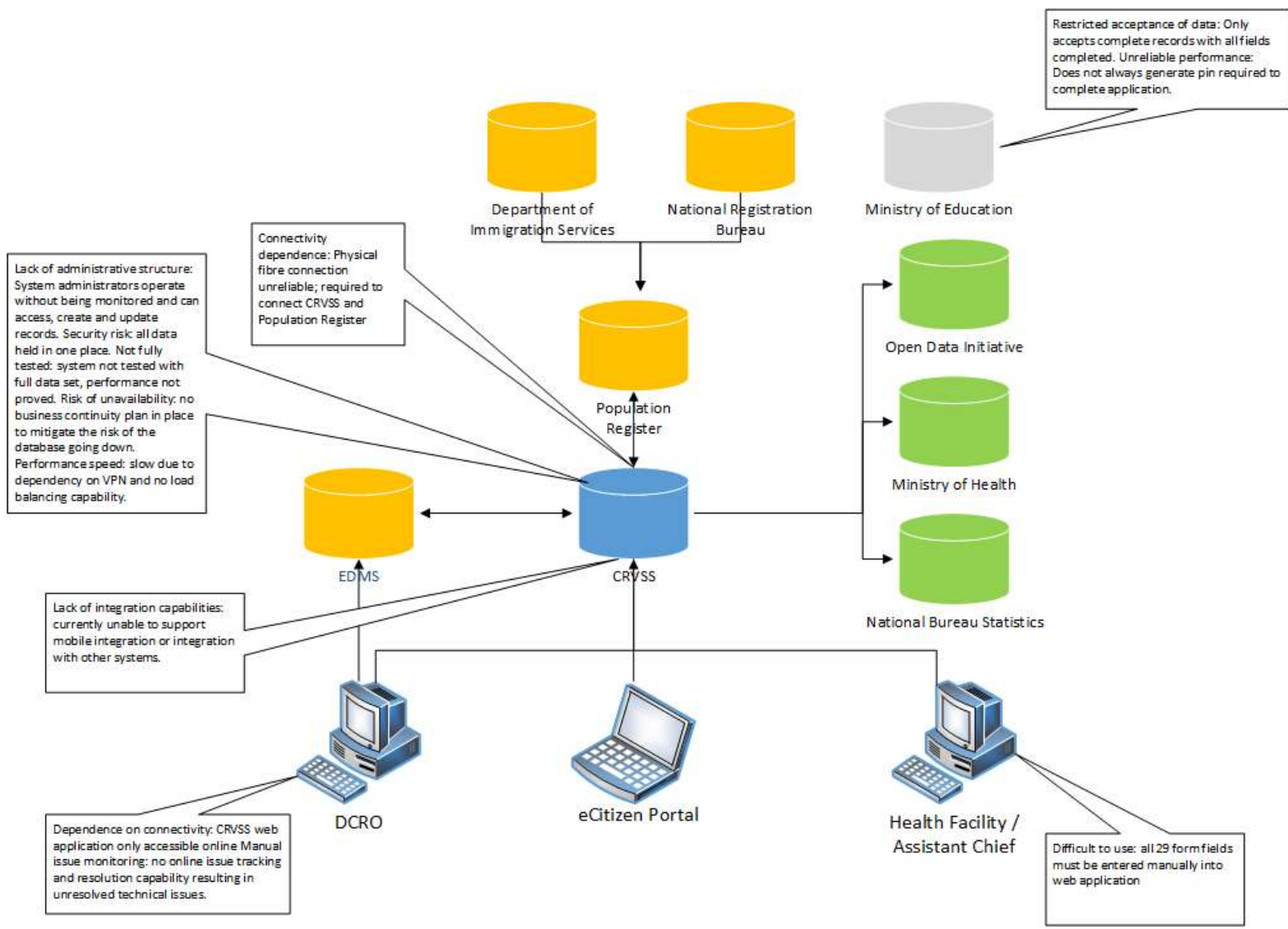
CRS

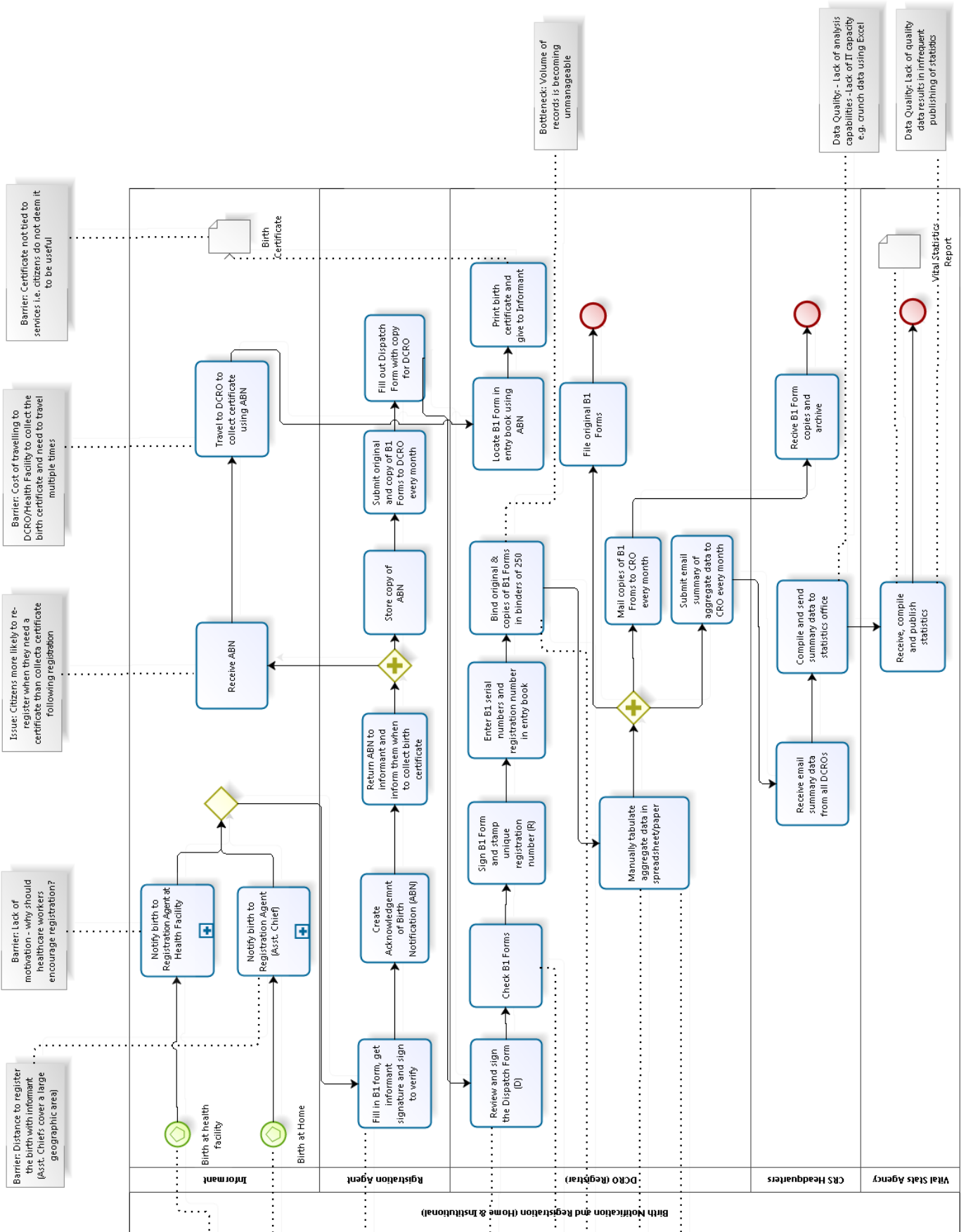
MoH

KNBS

Service	Type	Client	Performance Indicator
Registration	Birth	Public	
	Death	Public	
	Late	Public	
	Re-registration: legitimation	Public	
	Re-registration: recognition	Public	
Issuance of Certificate	Birth	Public	
	Death	Public	
Verification		Other	
Production of Vital Statistics		VS	
Storage & preservation of records		Public	
Amendments of records		Public	







Barrier: Distance to register the birth with informant (Asst. Chiefs cover a large geographic area)

Barrier: Lack of motivation - why should healthcare workers encourage registration?

Issue: Citizens more likely to register when they need a certificate than collect a certificate following registration

Barrier: Cost of travelling to DCRO/Health Facility to collect the birth certificate and need to travel multiple times

Barrier: Certificate not tied to services i.e. citizens do not deem it to be useful

Barrier: Cultural consideration - the Father, as primary decision maker in the household, is unaware of the importance of registration and lacks motivation to register the child.

Barrier: Registration Agent does not acknowledge role of registration agent as a priority Agent unaware of birth registration's importance as a contributor to security Not enough authorised agents provided to agents to travel large distances in different contexts Fearful of travelling to insecure areas

Bottleneck: Limited staff in DCRO to process forms - Paper forms not available due to issues with Goet Printers

Bottleneck: Manual process results in delays in processing B1 Forms

Bottleneck: Repetitive, manual process is slow and prone to errors

Bottleneck: Tallying process is time-consuming

Data Quality: -Tallying process is manual resulting in errors: Registrar does not differentiate between new and late registrations. -Impact: Inaccurate data

Bottleneck: Volumes of records is becoming unmanageable

Data Quality: - Lack of analysis capabilities - Lack of IT capacity e.g. crunch data using Excel

Data Quality: Lack of quality data results in infrequent publishing of statistics

Use Case Template

Listed below is a generic list of potential Digital CRVS System Use Cases. Edit this list as appropriate for your defined CRVS Target System Architecture and processes and complete the included template for each one.

Civil Registration (for each vital event)

Register vital event

Validate vital event record received from other source

Correct/amend vital event record

Search for a vital event record

Print legal documentation (registration certificate)

Data management and reporting

Create new reference data

Edit reference data

Delete reference data

Define vital statistics report content

View vital statistics report(s)

Export vital statistics report(s)

Define operational report content

View operational report(s)

Export operational report(s)

Administrative functions

Create new system user

Edit details of system user

Delete system user

Define system permissions

Assign permissions to system user(s)

Revoke permissions of system user(s)

Create user group(s)

Data Security

Back-up data

Restore data

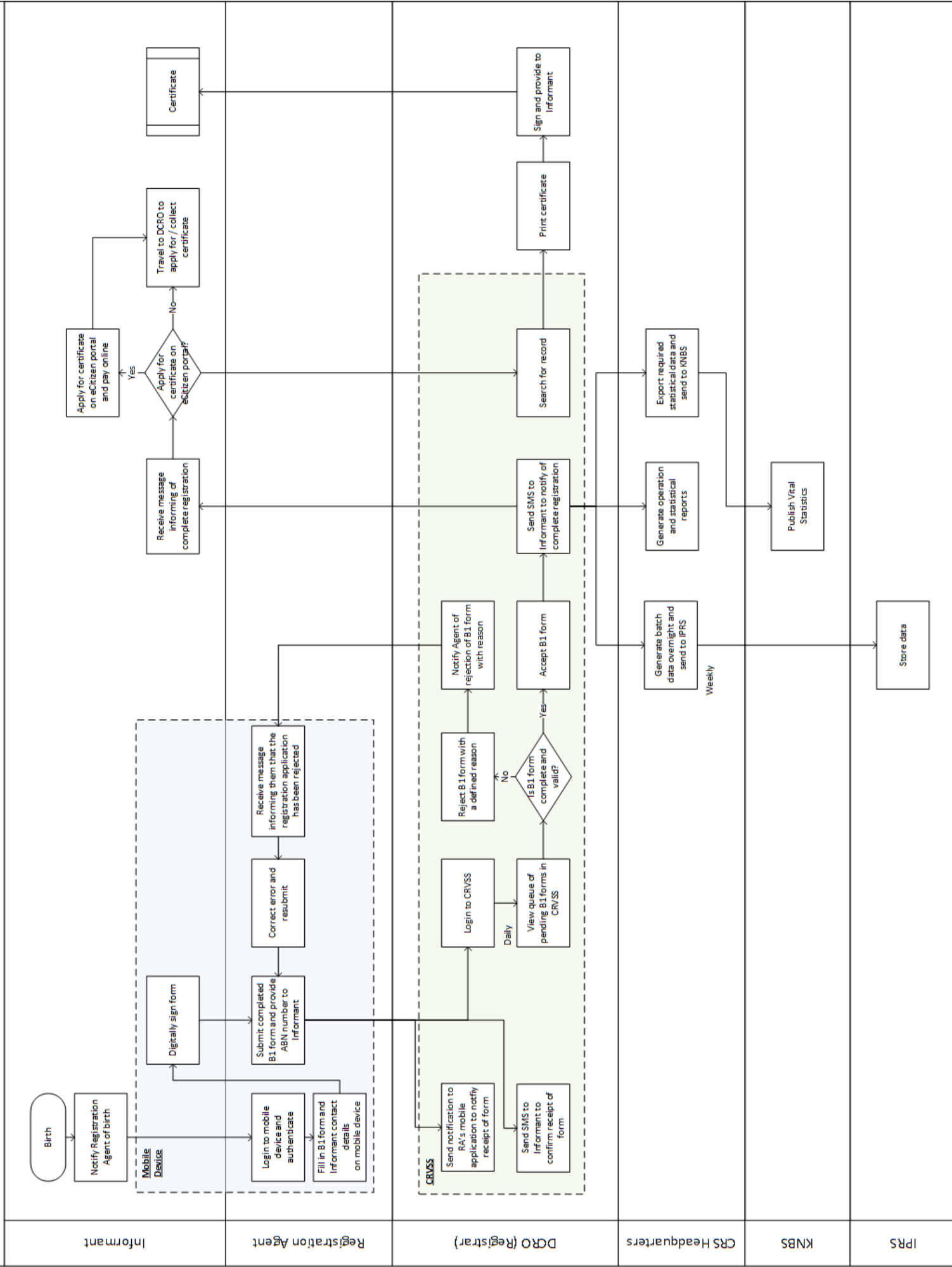
Example 1: Register Birth

Note. Use Cases will later be used to inform the definition of system requirements. An example set of functional requirements for this use case have been documented in the CRVS Requirements Template at the required level of detail.

Use Case Name	Register Birth
Use Case Description	User creates new birth record and saves it to central CRVS system, formally registering the birth
Scenarios	<ol style="list-style-type: none"> 1. Father not present 2. Child does not have name 3. Child born outside district 4. ...
Actor	Civil Registrar
Pre-Conditions	Actor is able to login to system
Basic-Flow	<ol style="list-style-type: none"> 1. Actor opens new birth record. 2. Actor completes all mandatory fields: <ul style="list-style-type: none"> - Name of Child - Name of Mother - Name of Father (optional) - Date of birth - Type of birth - Location of birth - ... 3. Actor submits birth record to system. 4. System validates input formats and mandatory fields. 5. System validates parents' ID with National ID system. 6. System prompts user to validate information. 7. Actor confirms information is correct. 8. System saves birth record.
Post-Conditions	Birth record is stored in system with status "registered"
Use Case Extension	<p>4.b) System does not validate input data → System prompts actor to enter correct information → Actor re-enters data / Actor cancels action → Go to step 3.</p> <p>5.b) System does not recognise parent ID → System prompts actor to enter correct information → Actor re-enters data / Actor cancels action → Go to step 3.</p> <p>...</p>

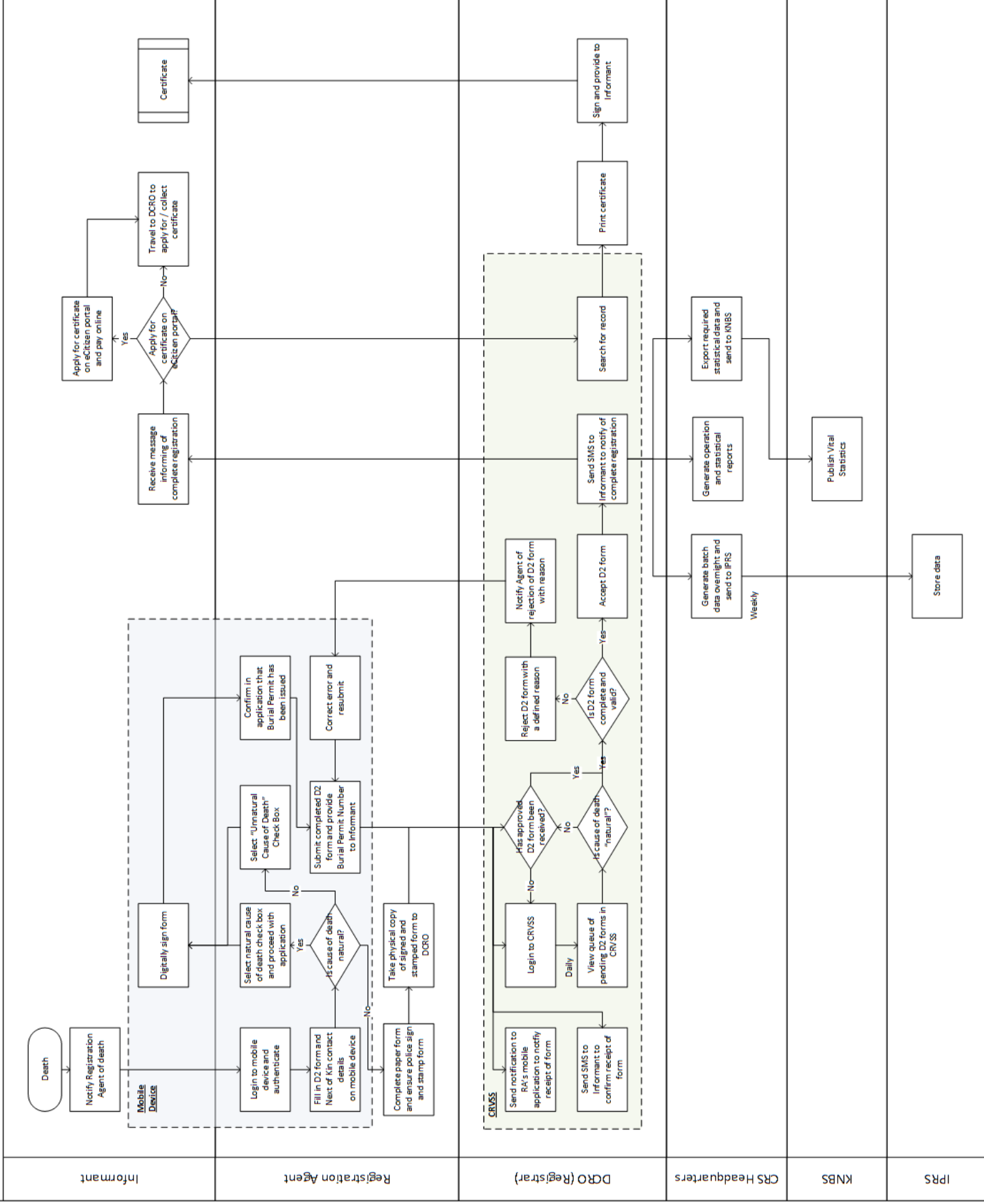
Birth Registration (Home Birth)

Phase



Birth Registration (Home Birth)

Phase



Generic CRVS Information Modelling Guide

Contents

1	CRVS Information Model	1
1.1	Definitions:.....	1
1.2	Principle CRVS Data Entities	2
1.3	Principle CRVS Data Elements.....	3
1.4	Entity Relationship Key and Modelling Concepts	5

1 CRVS Information Model

Information modelling describes the process of analysing the data that needs to be stored by the system and the way it needs to be structured in order to provide for the immediate data processing needs of the system as well as any possible future extensions to the system. The resulting information model is a fundamental component of any digital CRVS system.

1.1 Definitions:

Entities are objects or concepts that represent important data. They are typically nouns, e.g. birth event, registration event, person, mother, civil registration office, etc.

Attributes are characteristics of an entity; the separate data elements associated with a data entity.

Data definitions define the data elements themselves and the type of the data that is stored.

An information model can be defined and then elaborated at different levels:

- 1. A conceptual data model** is the simplest view and can be used as the foundation for logical data models. It :
 - Include important entities and the relationships between them.
 - Do not specify attributes.
 - Do not specify primary keys.
- 2. A logical data model** defines the logical structure of the data. This model contains more detail than the conceptual ER model, without regard

to how information will be physically implemented in the database. Logical data models:

- Include all entities and relationships between them.
- Specify attributes for each entity.
- Specify primary key for each entity.
- Specify foreign keys, which identify the relationship between different entities.
- Involve normalization, which is the process of removing redundancy in a table so that the table is easier to modify. Normalization typically occurs by dividing an entity table into two or more tables and defining relationships between the tables.

3. A physical data model describes how the logical model is translated into a model that can be implemented in an electronic database management system (DBMS). It represents the process of adding information to the database. This model shows all table structures, including column name, column data type, column constraints, primary key, foreign key, and relationships between tables. The structuring of the data in the physical data model will determine the flexibility of the information model and how it can be used to satisfy data processing and reporting requirements as well as future extension, if required. Physical data models:

- Specify all tables and columns.
- Include foreign keys to identify relationships between tables.
- May include denormalization, depending on user requirements.
- May be significantly different from the logical data model.
- Will differ depending on which DBMS (database management system) is used.

A commonly-used database management system is the relational database management system (RDBMS) that is usually modelled, at a logical level, by means of an entity-relationship model.

1.2 Principle CRVS Data Entities

The main Vital Event and Person entities defined in the Principles and Recommendations (UNSD, 2014) are detailed in the table below.

#	Vital Events
1	Live birth
1,1	Characteristics of the event
1,2	Characteristics of the newborn
1,3	Characteristics of the mother
1,4	Characteristics of the father
2	Death
2,1	Characteristics of the event
2,2	Characteristics of the decedent

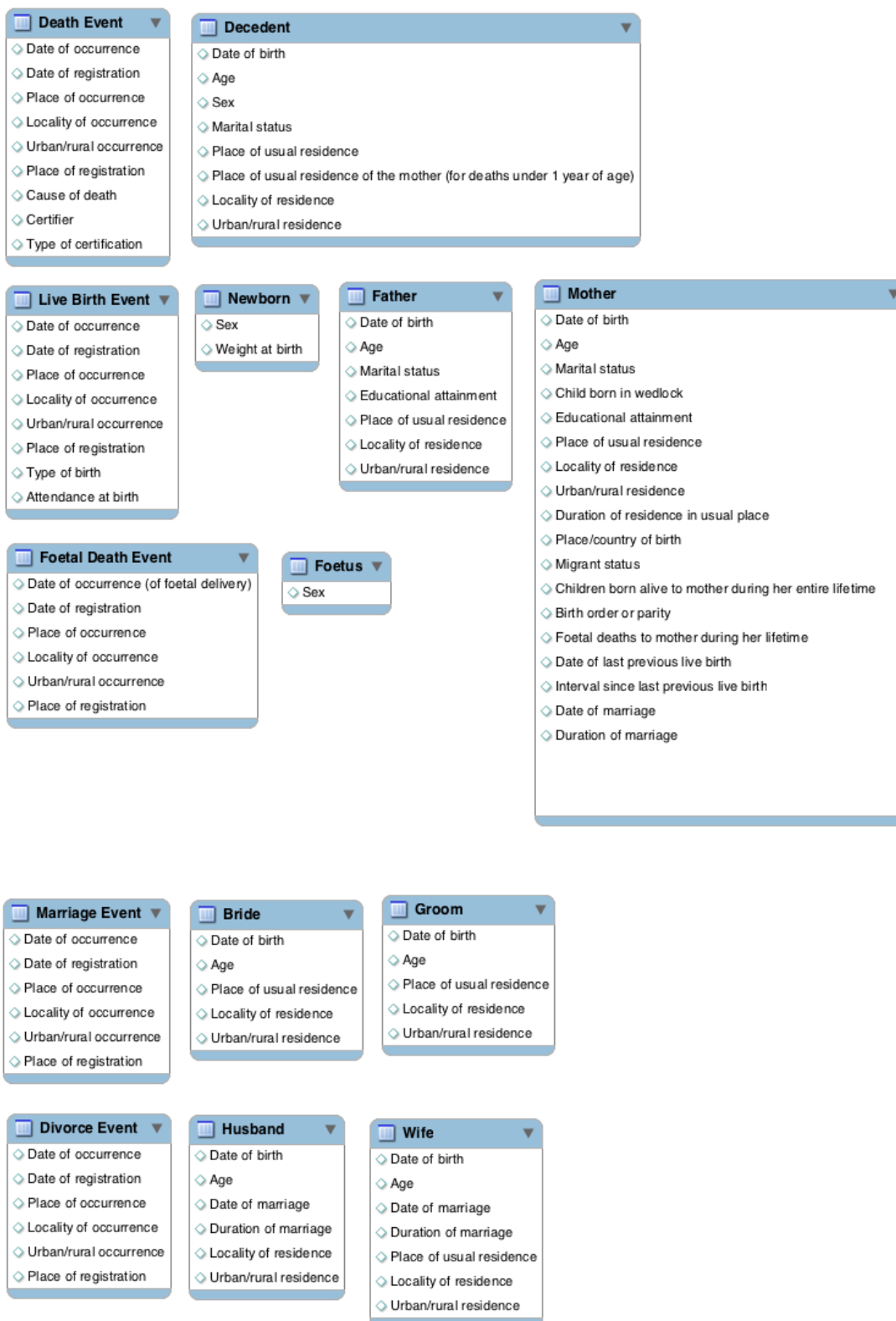
3	Foetal death
3,1	Characteristics of the event
3,2	Characteristics of the foetus
3,3	Characteristics of the mother
3,4	Characteristics of the father
4	Marriage
4,1	Characteristics of the event
4,2	Characteristics of bride and groom (separately)
5	Divorce
5,1	Characteristics of the event
5,2	Characteristics of divorcees (husband and wife separately)
5,3	Characteristics of population at risk

Main Entities defined in the Principles and Recommendations (UNSD, 2014)

1.3 Principle CRVS Data Elements

The first order CRVS data elements as defined in the Principles and Recommendations (UNSD, 2014) are shown in Figure One, below. The model was developed in MySQL Workbench¹, a free data modelling software tool that runs on several different operating systems. Default data types have been used for most of the data elements. This diagram is an examples that shows how the notation can be used to represent the data entities and attributes, but is NOT a comprehensive and complete Entity Relationship Diagram for CRVS.

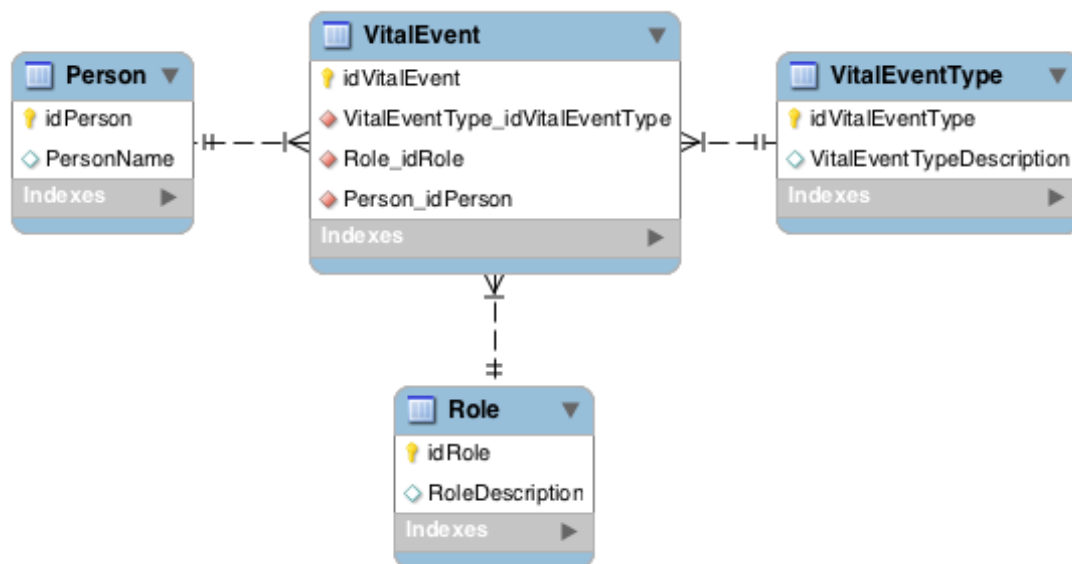
¹ <https://www.mysql.com/products/workbench/>



First Order CRVS Data Elements defined in the Principles and Recommendations (UNSD, 2014)

1.4 Entity Relationship Key and Modelling Concepts

Entity relationship modelling is used to model the main entities in a system as well as the main relationships between them. The notation depicts entities as tables, data elements as fields within the Tables and relationships as lines between the tables with the ends of the lines depicting the type of relationship. A simple entity relationship diagram for first order CRVS data elements is shown in Figure Two, below. The concepts and symbols are defined in Figure Three.



Normalised CRVS Entity-Relationship Model

This illustrative example diagram has the following features:

- The model has four entities, represented by Tables in the diagram: Vital Event, Vital Event Type, Person and Role.
- Each Table has two fields (columns), an ID field and a description field.
- The Vital Event table has three additional fields that correspond to the ID field in each of the other three tables. This means that each Vital Event record has a unique person, role in the vital event (eg newborn) and the event type (eg birth event) associated with it.

This is a very simple model. In practice, the tables in a working DBMS will have many more Tables and fields within the Table are well as relationships linking the tables. The purpose is to implement best practice for database management, such as keeping only one record of a data element and normalising the relationships between tables.

Some of the ways to structure information from the Principles and recommendations (UNSD, 2014) are detailed in the Appendices.

Note: The Information Model will help to define whether the CRVS system is considered "vital event" or "person"-centric, depending on the organisational priorities; for example, CRVS integrated within Population Registries will tend to be more person-centric.

CRVS - Data to be covered in a vital statistics system according to type of vital event							
#	Data Element Name	Type	Ref (Seriesm _Rev3e) Ch III Section D	Format / Options	Core Topic	Collected/ Derived/ Additional	Synonym
1	Live birth						
1.1	<u>Characteristic of the event</u>						
1.1.1	Date of occurrence	Date	1	ddMMyyyyHHmm	Yes	collected	
1.1.2	Date of registration	Date	2	ddMMyyyyHHmm	Yes	collected	
1.1.3	Place of occurrence		3		Yes	collected	
1.1.4	Locality of occurrence		5		Yes	derived	
1.1.5	Urban/rural occurrence		5		Yes	derived	
1.1.6	Place of registration		3		Yes	collected	
1.1.7	Type of birth		37	single, twin, triplet, quadruplet or higher-multiple delivery	Yes	collected	
1.1.8	Attendance at birth		38		Yes	collected	
1.1.9	Type of place of occurrence		45	hospital, at home, other institution, other place.	No	additional	
1.2	<u>Characteristics of the newborn</u>						
1.2.1	Sex		12		Yes	collected	Gender
1.2.2	Weight at birth	Int	14	Grams / Lbs and Oz converted to grams	Yes	collected	Birth weight/ mass
1.3	<u>Characteristics of the mother</u>						
1.3.1.	Date of birth	Date	1		Yes	collected	
1.3.2.	Age	Int	1		Yes	derived	
1.3.3	Marital status		27		Yes	collected	
1.3.4	Child born in wedlock (legitimacy status of the child)		13		Yes	derived	
1.3.5	Educational attainment		30		Yes	collected	
1.3.6	Literacy status		31		No	additional	
1.3.7	Ethnic and/or national group		32		No	additional	
1.3.8	Citizenship		33		No	additional	
1.3.9	Economic activity status		34		No	additional	
1.3.10	Usual occupation		35		No	additional	
1.3.11	Socioeconomic status		36		No	derived	

1.3.12	Place of usual residence		6		Yes	collected	
1.3.13	Locality of residence		4		Yes	derived	
1.3.14	Urban/rural residence		5		Yes	derived	
1.3.15	Duration of residence in usual place		7		Yes	collected	
1.3.16	Place of previous residence		8		No	additional	
1.3.17	Place/country of birth		9		Yes	collected	
1.3.18	Migrant status		10		Yes	derived	
1.3.19	Date of last menstrual period of the mother	Date	15	ddMMyyyy	No	additional	
1.3.20	Gestational age		15		No	derived	
1.3.21	Number of prenatal visits		16		No	additional	
1.3.22	Month of pregnancy prenatal care began		17		No	additional	
1.3.24	Children born alive to mother during her entire lifetime		19		Yes	collected	
1.3.25	Birth order or parity		22		Yes	derived	
1.3.26	Children born to mother during her entire lifetime and still living		20		No	additional	
1.3.27	Foetal deaths to mother during her entire lifetime		21		Yes	collected	
1.3.28	Date of last previous live birth	Date	23		Yes	collected	
1.3.29	Interval since last previous live birth		23		Yes	collected or derived	
1.3.30	Date of marriage	Date	26		Yes	collected	
1.3.31	Duration of marriage		26		Yes	derived	
1.4	<u>Characteristics of the father</u>						
1.4.1	Date of birth	Date	11		Yes	collected	
1.4.2	Age	Int	11		Yes	derived	
1.4.3	Marital status		27		Yes	collected	
1.4.4	Educational attainment		30		Yes	collected	
1.4.5	Literacy status		31		No	additional	
1.4.6	Ethnic and/or national group		32		No	additional	
1.4.7	Citizenship		33		No	additional	
1.4.8	Economic activity status		34		No	additional	
1.4.9	Usual occupation		35		No	additional	
1.4.10	Socioeconomic status		36		No	additional	
1.4.11	Place of usual residence		6		Yes	collected	
1.4.12	Locality of residence		4		Yes	derived	
1.4.13	Urban/rural residence		5		Yes	derived	
1.4.14	Duration of residence in usual (present) place		7		No	additional	
1.4.15	Place of previous residence		8		No	additional	

1.4.16	Place/country of birth		9		No	additional	
1.4.17	Migrant status		10		No	derived	
	<u>Characteristics of population at risk</u>						
	Population at risk for indicators related to live births is population, either mid-year population, or population disaggregated by age and sex, by marital status or by geographical location. The figures are to be obtained independently from population censuses, population registers, sample surveys and intercensal estimation procedures.					Other source	
2	Death						
2.1	<u>Characteristic of the event</u>						
2.1.1.	Date of occurrence		1	ddMMyyyyHHmm	Yes	collected	
2.1.2	Date of registration		2	ddMMyyyyHHmm	Yes	collected	
2.1.3	Place of occurrence		3		Yes	collected	
2.1.4	Locality of occurrence		4		Yes	derived	
2.1.5	Urban/rural occurrence		5		Yes	derived	
2.1.6	Place of registration		3		Yes	collected	
2.1.7	Cause of death		41		Yes	collected	
2.1.8	Manner of death		42		No	additional	
2.1.9	Whether autopsy findings were used to establish cause of death		43		No	additional	
2.1.10	Death occurring during pregnancy, childbirth and puerperium (for females 15-49 years of age)		44		No	additional	
2.1.11	Certifier		39		Yes	collected	
2.1.12	Type of certification		40		Yes	derived	
2.1.13	Attendance at birth (for deaths under 1 year of age)		38		No	additional	
2.1.14	Type of place of occurrence (hospital, home, etc.)		45		No	additional	
2.2	<u>Characteristics of the decedent</u>						
2.2.1	Date of birth		11		Yes	collected	
2.2.2	Age		11		Yes	derived	
2.2.3	Sex		12		Yes	collected	
2.2.4	Marital status		27		Yes	collected	
2.2.5	Educational attainment		30		No	additional	
2.2.6	Literacy status		31		No	additional	
2.2.7	Ethnic and/or national group		32		No	additional	
2.2.8	Citizenship		33		No	additional	

2.2.9	Economic activity status		34		No	additional	
2.2.11	Usual occupation		35		No	additional	
2.2.12	Socioeconomic status		36		No	derived	
2.2.13	Whether birth was registered (for deaths under 1 year of age)		18		No	additional	
2.2.14	Born in wedlock (for deaths under 1 year of age)		13		No	additional	
2.2.15	Legitimacy status (for deaths under 1 year of age)		13		No	derived	
2.2.16	Place of usual residence		6		Yes	collected	
2.2.17	Place of usual residence of the mother (for deaths under 1 year of age)		6		Yes	collected	
2.2.18	Locality of residence		4		Yes	derived	
2.2.19	Urban/rural residence		5		Yes	derived	
2.2.20	Duration of residence in usual (present) place		7		No	additional	
2.2.21	Place of previous residence		8		No	additional	
2.2.22	Place of birth		9		No	additional	
2.2.23	Migrant status		10		No	derived	
2,3	Characteristics of population at risk						
	Population at risk for indicators related to general deaths is population, i.e., mid-year population, or population disaggregated by age and sex, by marital status or by geographical location. The figures are to be obtained independently from population censuses, population registers, sample surveys and intercensal estimation procedures. Population at risk for indicators related to infant deaths (deaths under 1 year of age) is usually live births, which is preferably to be obtained from the civil registration system.					Other source	
3	Foetal death						
3.1	Characteristics of the event						
3.1.1.	Date of occurrence (of foetal delivery)		1	ddMMyyyyHHmm	Yes	collected	
3.1.2	Date of registration		2	ddMMyyyyHHmm	Yes	collected	
3.1.3	Place of occurrence		3		Yes	collected	
3.1.4	Locality of occurrence		4		Yes	derived	
3.1.5	Urban/rural occurrence		5		Yes	derived	
3.1.6	Place of registration		3		Yes	collected	
3.1.7	Type of birth		37		No	additional	

3.1.8	Attendant at birth		38		No	additional	
3.1.9	Certifier		39		No	collected	
3.1.10	Type of certification		40		No	derived	
3.1.11	Cause of foetal death		41		No	additional	
3.1.12	Type of place of occurrence (hospital, home, etc.)		45		No	additional	
3.2	<u>Characteristics of the foetus</u>						
3.2.1	Sex		12		Yes	collected	
3.2.2	Delivered in wedlock		13		No	additional	
3.2.3	Legitimacy status		13		No	derived	
3.2.4	Weight at delivery		14		No	additional	
3.2.5	Date of last menstrual period of the mother		15	ddMMyyyy	No	additional	
3.2.6	Gestational age		15		No	derived	
3.3	<u>Characteristics of the mother</u>						
3.3.1	Date of birth		11		Yes	collected	
3.3.2	Age		11		Yes	derived	
3.3.3	Number of prenatal visits				No	additional	
3.3.4	Month of pregnancy when prenatal care began				No	additional	
3.3.5	Children born alive to mother during her entire lifetime		19		Yes	collected	
3.3.6	Birth order or parity		22		Yes	derived	
3.3.7	Children born to mother during her entire lifetime and still living				No	additional	
3.3.8	Foetal deaths to mother during her entire lifetime				Yes	collected	
3.3.9	Date of last previous live birth	Date			Yes	collected	
3.3.10	Interval since last previous live birth				Yes	derived	
3.3.11	Date of marriage	Date			Yes	collected	
3.3.12	Duration of marriage				Yes	derived	
3.3.13	Educational attainment		30		No	additional	
3.3.14	Literacy status		31		No	additional	
3.3.15	Economic activity status		34		No	additional	
3.3.16	Usual occupation		35		No	additional	
3.3.17	Socioeconomic status		36		No	derived	
3.3.18	Ethnic and/or national group		32		No	additional	
3.3.19	Citizenship		33		No	additional	
3.3.20	Place of usual residence		6		Yes	collected	
3.3.21	Locality of residence		4		Yes	derived	
3.3.22	Urban/rural residence		5		Yes	derived	
3.3.24	Duration of residence in usual (present) place		7		No	additional	

3.3.25	Place of previous residence		8		No	additional	
3.3.26	Place of birth		9		No	additional	
3.3.27	Migrant status		10		No	derived	
3.4	Characteristics of the father						
3.4.1	Date of birth	Date	11		Yes	collected	
3.4.2	Age	Int	11		Yes	derived	
3.4.3	Education attainment		30		No	additional	
3.4.4	Literacy status		31		No	additional	
3.4.5	Economic activity status		34		No	additional	
3.4.6	Usual occupation		35		No	additional	
3.4.7	Socioeconomic status		36		No	derived	
3.4.8	Place of usual residence		6		Yes	collected	
3.4.9	Locality of residence		4		Yes	derived	
3.4.10	Urban/rural residence		5		Yes	derived	
3.4.11	Duration of residence in usual (present) place		7		No	additional	
3.4.12	Place of previous residence		8		No	additional	
3.4.13	Place of birth		9		No	additional	
3.4.14	Migrant status		10		No	derived	
3.4.15	Ethnic and/or national group		32		No	additional	
3.4.16	Citizenship		33		No	additional	
3.5	Characteristics of population at risk						
	Population at risk for indicators related to foetal deaths is live births, which is preferably to be obtained from the civil registration system.						
4	Marriage						
4.1	Characteristics of the event						
4.1.1	Date of occurrence		1	ddMMyyyy	Yes	collected	
4.1.2	Date of registration		2	ddMMyyyyHHmm	Yes	collected	
4.1.3	Place of occurrence		3		Yes	collected	
4.1.4	Locality of occurrence		4		Yes	derived	
4.1.5	Urban/rural occurrence		5		Yes	derived	
4.1.6	Place of registration		6		Yes	collected	
4.1.7	Type of marriage		46		No	additional	
4.2	Characteristics of bride and groom (separately)						
4.2.1	Date of birth		11		Yes	collected	
4.2.2	Age		11		Yes	derived	
4.2.3	Marital status (previous)		27		No	additional	

4.2.4	Number of previous marriages		28		No	additional	
4.2.5	Marriage order		28		No	derived	
4.2.6	Educational attainment		30		No	additional	
4.2.7	Literacy status		31		No	additional	
4.2.8	Economic activity status		34		No	additional	
4.2.9	Usual occupation		35		No	additional	
4.2.10	Socioeconomic status		36		No	derived	
4.2.11	Ethnic and/or national group		32		No	additional	
4.2.12	Citizenship		33		No	additional	
4.2.13	Place of usual residence		6		Yes	collected	
4.2.14	Locality of residence		4		Yes	derived	
4.2.15	Urban/rural residence		5		Yes	derived	
4.2.16	Duration of residence in usual (present) place		7		No	additional	
4.2.17	Place of previous residence		8		No	additional	
4.2.17	Place of birth		9		No	additional	
4.2.18	Migrant status		10		No	derived	
4,3	Characteristics of population at risk						
	Population at risk for indicators related to marriages is population, i.e., mid-year population, or population disaggregated by age and sex or by geographical location. The figures are to be obtained independently from population censuses, population registers, sample surveys and intercensal estimation procedures.					Other source	
5	Divorce						
5,1	Characteristics of the event						
5.1.1	Date of occurrence		1	ddMMyyyy	Yes	collected	
5.1.2	Date of registration		2	ddMMyyyyHHmm	Yes	collected	
5.1.3	Place of occurrence		3		Yes	collected	
5.1.4	Locality of occurrence		4		Yes	derived	
5.1.5	Urban/rural occurrence		5		Yes	derived	
5.1.6	Place of registration		3		Yes	collected	
5,2	Characteristics of divorcees (husband and wife separately)						
5.2.1	Date of birth		11		Yes	collected	
5.2.2	Age		11		Yes	derived	
5.2.3	Type of marriage being dissolved		46		No	additional	

5.2.4	Number of dependent children of divorced persons		25		No	additional	
5.2.5	Number of children born alive to the marriage being dissolved		24		No	additional	
5.2.6	Date of marriage	Date	26		Yes	collected	
5.2.7	Duration of marriage	Int	26		Yes	derived	
5.2.8	Mode of dissolution of previous marriage		29		No	additional	
5.2.9	Number of previous marriages	Int	28		No	additional	
5.2.10	Marriage order	Int	28		No	derived	
5.2.11	Educational attainment		30		No	additional	
5.2.12	Literacy status		31		No	additional	
5.2.13	Economic activity status		34		No	additional	
5.2.14	Usual occupation		35		No	additional	
5.2.15	Socioeconomic status		36		No	derived	
5.2.16	Ethnic and/or national group		32		No	additional	
5.2.17	Place of usual residence		6		Yes	collected	
5.2.17	Locality of residence		4		Yes	derived	
5.2.18	Urban/rural residence		5		Yes	derived	
5.2.19	Duration of residence in usual (present) place		7		No	additional	
5.2.20	Place of previous residence		8		No	additional	
5.2.21	Place of birth		9		No	additional	
5.2.22	Migrant status		10		No	derived	
5.2.23	Place of occurrence of marriage being dissolved		3		No	additional	
5,3	Characteristics of population at risk						
	Population at risk for indicators related to divorces is population, i.e., mid-year population, or population disaggregated by age and sex, by marital status or by geographical location. The figures are to be obtained independently from population censuses, population registers, sample surveys and intercensal estimation procedures.					Other source	
6	Census-type information						
	<i>To be collected in population censuses and single-round retrospective sample surveys that use census-type questions</i>						
6,1	For all members of the household						
6.1.1	Relationship to the head of household						

6.1.2	The line number on the questionnaire of his or her mother, if she lives in the household						
6.1.3	Date of birth						
6.1.4	Maternal and paternal orphanhood (or survival of parents)						
6.1.5	Marital status						
6,2	For women 15 years of age (or the minimum age adopted in the country) and over						
6.3.1	Total number of children ever born alive, by sex						
6.3.2	Total number of children ever born alive and still living, by sex						
6.3.3	Date of birth and sex of the last child born alive						
6.3.4	Survival of the last child born alive at the time of the census or survey						
6.3.5	Date of death of the last child born alive						
6.3.6	Age at first marriage		11				
6.3.7	Age at first birth		11				
6.3.8	Duration of marriage (or date of first marriage)						
6,3	For households						
6.3.1	Number of deaths in the household during the previous 12 months						
6.3.2	For each deceased:						
6.3.3	Deceased-Name						
6.3.4	Deceased-Sex						
6.3.5	Deceased-Date of birth		11				
6.3.6	Deceased-Date of death						
6.3.7	Cause of deaths, whether occurring during pregnancy, childbirth or puerperium						
7	Survey-type information						
	<i>To be collected in individual in-depth single-round retrospective surveys</i>						
7,1	For all members of the household						
7.1.1	Relationship to the head of household						
7.1.2	The line number on the questionnaire of his or her mother, if she lives in the household						
7.1.3	Date of birth		11				

7.1.4	Maternal and paternal orphanhood (or survival of parents)						
7.1.5	Marital status						
	<i>For basic questions on fertility, mortality and nuptiality:</i>						
7.2.1	Total number of children ever born alive, by sex						
7.2.2	Total number of children ever born alive and still living, by sex						
7.2.3	Date of birth and sex of the last child born alive						
7.2.4	Survival of the last child born alive at the time of the census or survey						
7.2.5	Date of death of the last child born alive						
7.2.6	Age at first marriage		11				
7.2.7	Age at first birth		11				
7.2.8	Duration of marriage (or date of first marriage)						
7,3	<i>Questions on the birth history (or a maternity/pregnancy history) of the woman</i>						
7.3.1	Name						
7.3.2	Date of birth		11				
7.3.3	Sex						
7.3.4	Survivorship status						
7.3.5	Age at last birthday, if alive		11				
7.3.6	Age at death, if dead (or date of death)		11				
7.3.7	Gestational age, if foetal death (in completed weeks of gestation)						
7.3.8	Date of occurrence, if foetal death						
7,4	<i>To be collected for the woman:</i>						
7.4.1	Age		11				
7.4.2	Age at first marriage		11				
7.4.3	Age at first birth		11				
7.4.4	Duration of marriage (or date of first marriage)						
7.4.5	History of marriages						

Future State Architecture Guide

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1 System Architecture

Developing a system architecture for the future state CRVS is a fundamental part of the digitisation process. When considering system architecture, there are a number of integration models that can be employed and this guide provides an indicative overview of three such models. Although not exhaustive, this list should be used to support further investigation and decision making regarding CRVS systems architecture.

1.1 Modular CRVS Architecture

A simple modular CRVS architecture is shown in Figure One, below. This architecture is typified by a system where births and deaths are managed by one system in one ministry (typically ministry of the interior or home affairs) while marriages and divorces are managed by a separate system in a different ministry (typically ministry of justice). Data from both systems are exported separately to a vital statistics database, for the purposes of compiling vital statistics and the creation of statistical reports. Data may also be exported, separately, at defined intervals to the population register.

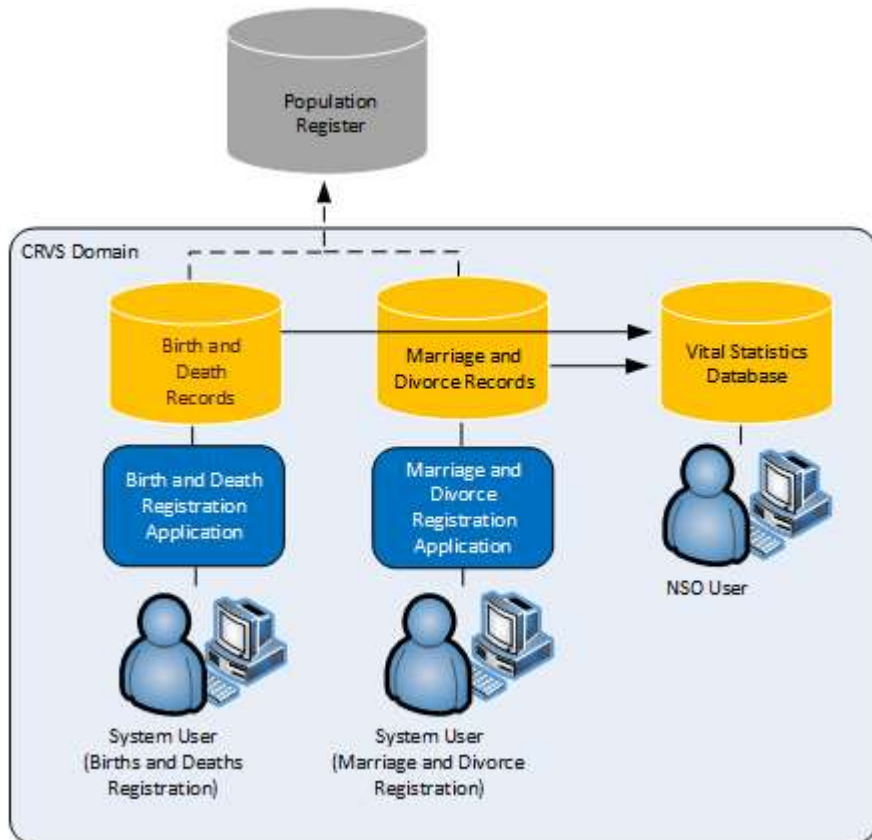


Figure One. Simple Future State Architecture

A modular CRVS architecture has the following characteristics:

- The registration of vital events (e.g. for data capture, processing, validation and certificate issuance) is handled by separate applications.
- Records of respective vital event are held within separate databases.
- Data is exported independently from each application to the vital statistics database and other systems e.g. population register.

1.2 Integrated CRVS Architecture

A simple example of an integrated architecture is shown in Figure Two, below. In this example, a single CRVS application and associated database supports registration of a number of vital events, including births, deaths, marriages and divorces. The CRVS database is also used to support the generation of vital statistics.

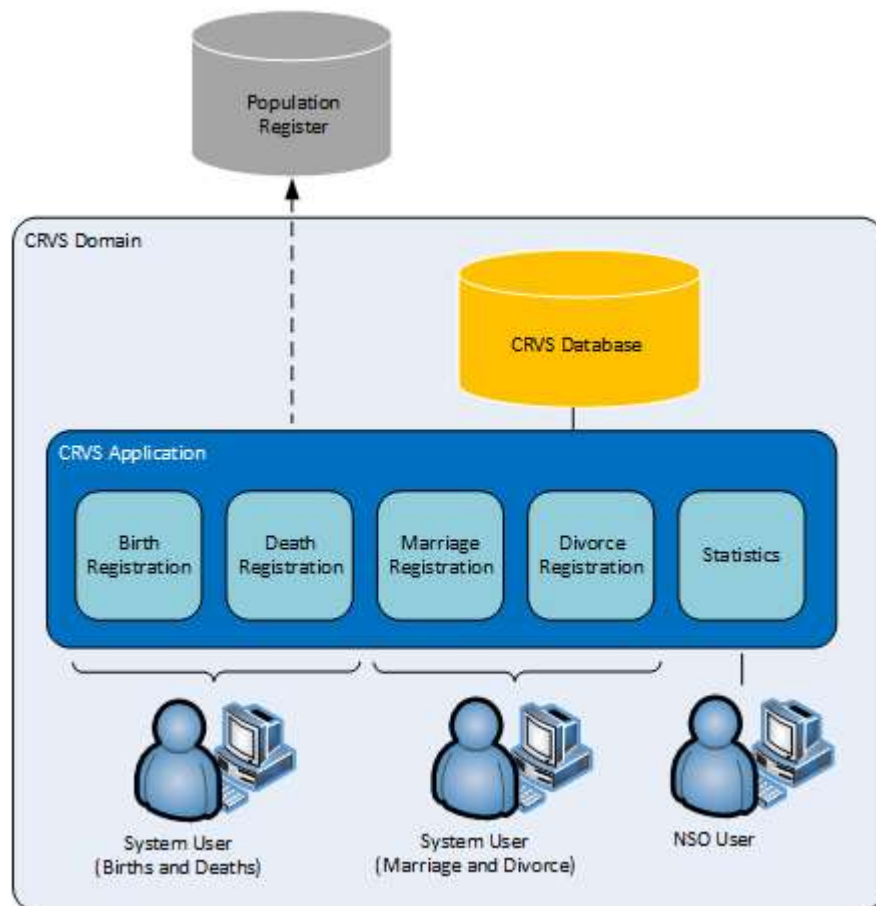


Figure Two. Integrated CRVS System Architecture

The integrated architecture has the following characteristics:

- The registration of vital events (e.g. for data capture, processing, validation and certificate issuance) is handled within one central application.
- Records of respective vital events are held within the same database and are linked using a common, unique identifier.
- The central CRVS database is used to provide the data for vital statistics reporting.
- All data exported to other systems (e.g. population register) uses a common interface.

1.3 Interoperable CRVS Architecture

A more advanced, interoperable, CRVS system architecture is shown in Figure Three, below. This architecture makes the different application components of the CRVS system interoperable among themselves and importantly with other services e.g. health. This approach provides the opportunity to harmonize core CRVS processes with core health processes and has the potential to improve the outcomes of each. For example, immunization records of infants can be used as a source of data for the birth registration process, taking advantage of high immunisation rates.

The CRVS and Health Interoperability and Data Exchange Architecture, described below, shows one way of achieving this (other, more elaborate variations of this architecture are available but many use the same basic pattern). The basic Architecture uses a combination of three layers:

- **Points of Service (PoS)**, comprising of CRVS and eHealth application software at various offices and locations.
- **Centralised Registries and Shared Record Services** including a Vital Event Registry for CRVS and additional registries and repositories serving health and other domains (e.g. the population registry).
- **Interoperability and Data Exchange**, comprising of a single middleware application facilitating communication between the PoS applications and the centralised registries and shared record services, using standards-based messaging for different PoS applications to send and receive data.

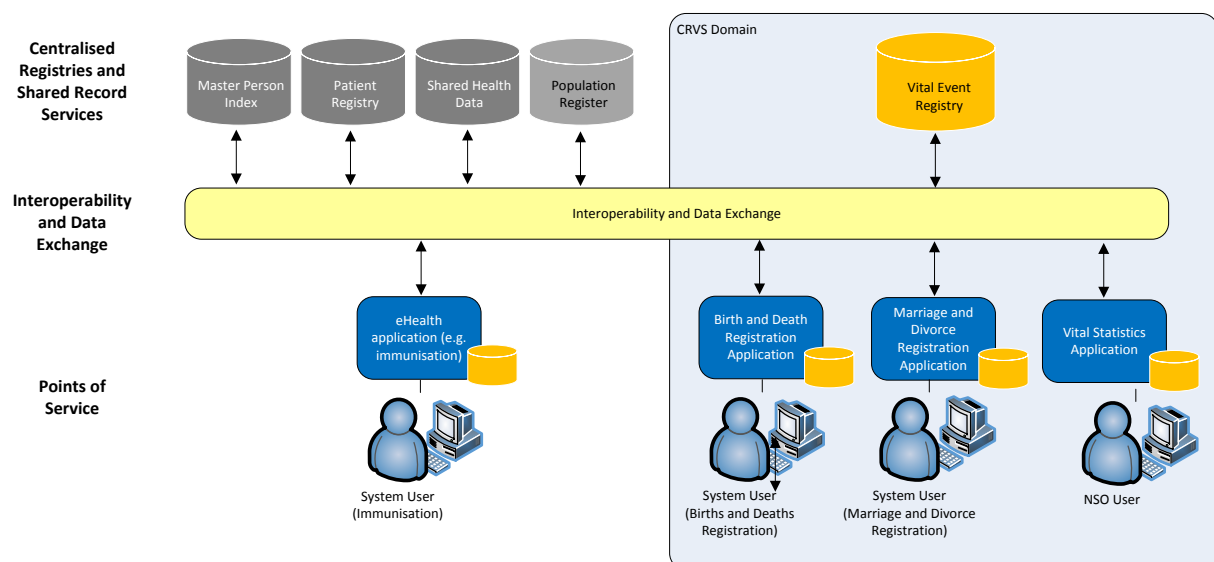


Figure Three. CRVS and Health Interoperability and Data Exchange Architecture

This architecture may typically have the following components:

- An **Interoperability and Data Exchange Application** that facilitates communication between software applications and data at the point of service level and the central registries, index and data reporting applications. The application relies on standards to receive and route individual data elements through the interoperability and data exchange, checking identifiers and populating registries.
- A **Vital Event Registry** that can be used to track vital events during a person's life, e.g. birth, death, marriage and divorce. In each case, the vital event record is associated with a unique identifier stored in the Master Person Index.

- A **Master Person Index (MPI)** that is used to manage multiple identifiers for particular individuals, including a national person identifier, a patient identifier, birth and death registration identifiers. All the identifiers can be linked together using a central internal master person (unique) identifier following best practices for creating identifiers.
- A **Patient Registry** that serves as a repository of unique patient identifiers (where applicable and separate from the MPI). In many cases, this is managed together with the MPI.
- A **Shared Health Data** repository that stores selected longitudinal health-related events collected from the PoS applications.
- **Point of Service Applications**, that collect data in digital format at various points of service for local use as well as for transmission to a central point for information management and reporting.

The interoperable architecture has the following characteristics:

- Separation of applications and their databases into defined application domains.
- Central interoperability layer for data exchange and facilitating interoperability between different applications.
- Centralised common services e.g. identity and access management, which can be used by multiple PoS applications.

1.4 Strengths and Weaknesses of Architecture Models

Some of the strengths and weaknesses of above architectural models are listed in Table One, below:

	Strengths	Weaknesses
Modular	<p>Simple architecture to implement and easy to manage and secure data</p> <p>Ownership of each system is in the hands of the respective authority with corresponding responsibility for the data</p> <p>Can be efficient and flexible in serving the needs of specific CRVS services</p>	<p>Difficult to integrate data and produce integrated reports</p> <p>Duplication of key information may compromise maintenance of data and quality</p> <p>More difficult to reuse data across different applications</p> <p>More likely to result in duplication of infrastructure and resources</p>
Integrated	<p>Moderately easy system to implement</p>	<p>Greater dependency on online systems for data rationalisation</p>

	<p>Effective trade-off between simplicity and addressing data management issues</p> <p>Effective at managing the issue of data duplication</p>	<p>Challenges implementing in remote areas and integrating external applications</p>
Interoperable	<p>Powerful system that integrates all CRVS systems as well as providing the opportunity to integrate systems from other departments, e.g. health and justice</p> <p>Flexible architecture that allows for the addition of related applications over time</p> <p>Can potentially support integrated workflow between different applications, e.g. CRVS and health</p> <p>Supports external access from other applications, including citizen-centric applications</p>	<p>Complex to implement requiring advanced IT skills and planning</p> <p>Even greater dependency than the integrated system on online access to realize the full potential of the system</p> <p>Increased requirement for cooperation and governance between government departments</p> <p>May require specialist systems and software</p>

Table One. Integrated versus Interoperable CRVS System Architectures

2 Case Study – Namibia CRVS System

The Namibia CRVS systems is an example of an integrated architecture that will be moving to an interoperable architecture in the future. The logical architecture of the present CRVS system in Namibia is shown in Figure Five and the future state architecture in Figure Six, below.

The current CRVS system comprises of a central integrated database system that integrates data from the different civil registration services. These services include the population registry, hence a demographic profile is created for all people resident in the country. For citizens, the demographic profile is linked to the other civil registration systems, including births and deaths. IDs are also linked to the demographic profile and linked to parents. Details of marriages and divorces are received from the courts and linked to the demographic profile.

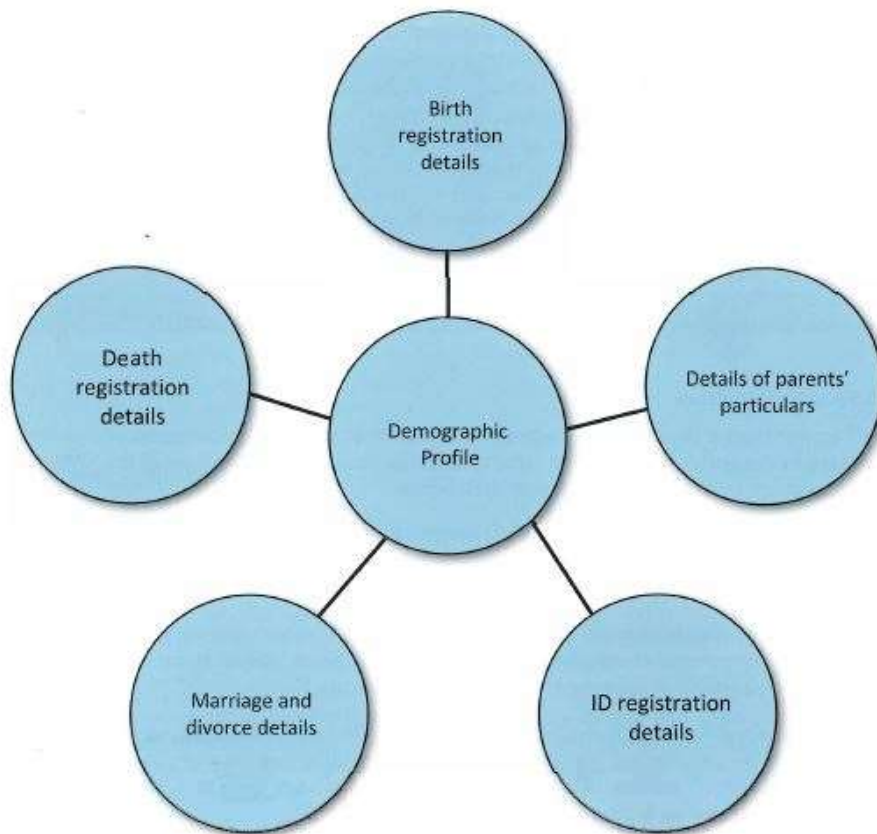


Figure Five. Current Structure of the Namibia Integrated CRVS Database System

The future state architecture that is currently being planned for Namibia (Figure Six, below) is an example of an interoperable, service-oriented architecture, and comprises of the following key features:

- Population Register and Business Process Management database
- Middleware interoperability layer providing the following two functions:
 - Business process engine that will supplement the existing database function with a workflow function to manage the processing of information through different components of the system.
 - Data exchange services to move data securely between the different web applications
- Web applications, including the following:
 - Codes/Parameter maintenance
 - Security maintenance
 - Back office operations
 - Front office operations
 - Report and business intelligence

- General web services, supporting SMS services
- Portal services for public client and external stakeholder access

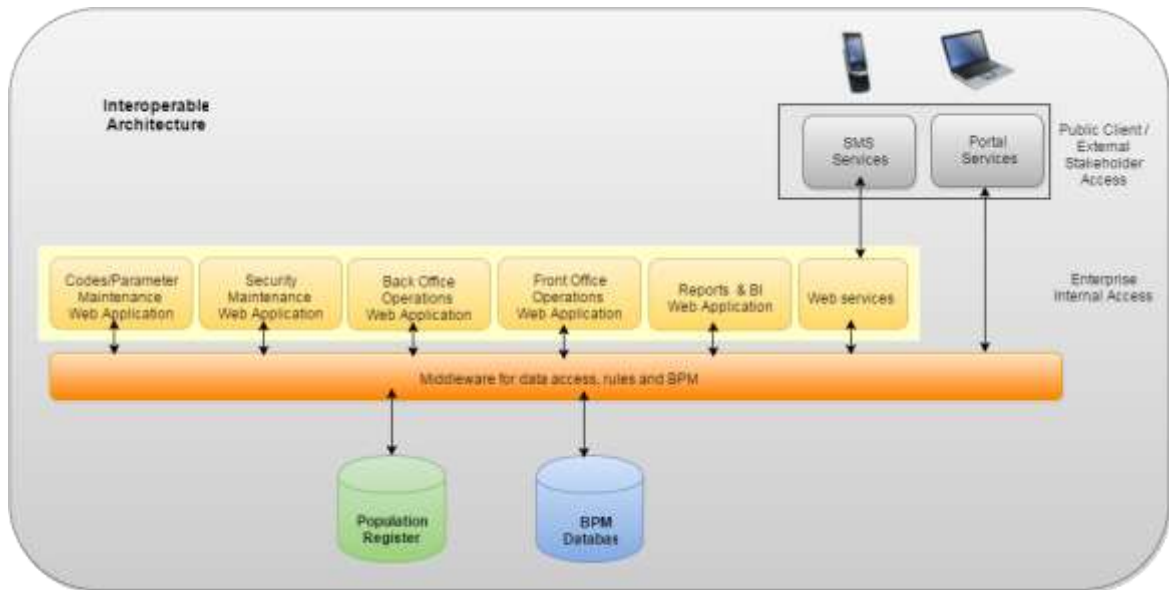


Figure Six. Future State Architecture for Namibia

Service Level Agreement / Support Plan Template

Purpose

The purpose of this service level agreement / support plan is to define the required levels of on-going support for the CRVS system, both hardware and software and identify the people and/or organisations responsible for providing the support.

1. Support Objectives and Assumptions

1.1. Support Objective

List the aims and goals of this support plan e.g. to ensure that the CRVS system is monitored on a 24/7 basis, and that a business continuity plan is in place and that there are processes in place to ensure that interruptions to the CRVS service are minimised when software or hardware is upgraded.

2. Support Strategy and Environment

2.1. Support Strategy

Use this section to describe how long the support plan will exist, frequency of revisions to the plan, what are the requirements for implementing changes and new releases

2.1.1. Support Lifetime

Document the timeframe estimated for the support plan to be in place. List the conditions that require a review of the support plan to capture necessary updates, e.g., every 6 months, a major release of the system, etc.

2.2. Support Environment

Describe the technical environment that the CRVS system requires and any special requirements or issues surrounding that environment. If there are multiple environments e.g. for development, training, testing and production, list all of them.

2.2.1. Software

2.2.2. Hardware and Infrastructure

2.2.3. Databases

2.2.4. Data Exchange

3. Support Responsibilities

3.1. Software Maintenance

List who provides maintenance of the software and how they can be contacted.

3.2. System Administration

List who provides the systems administration for the hardware and infrastructure and how they can be contacted.

3.3. Operational and user support

Consider the criticality of the application to the business function to determine hours and response time and types. Define objectives for maintaining the integrity of the system through data backup and disaster recovery.

3.4. Database Administration

List who provides the systems administration for the database and how they can be contacted.

3.5 Data Exchange/System Dependencies

List other systems or databases that:

- exchange data with this system
- are dependent on this system
- this system is dependent upon

and identify the organisation and persons responsible for those systems.

3.6 Licensing, data rights, and expiration of licenses

Provide a list of licenses, or a location or contact for this data, and include the process for license renewals

3.7. Security and Privacy Concerns

List any access restrictions for viewing, update, etc.

4. Support Process

Describe the process that should be followed by end users who want to report a problem, ask for assistance or request a new feature.

4.1. Problem Referral Contacts

Use this list for the final production environment for the system. Examples might be who to contact if a server goes down, for login or connection problems, etc. This may be an identified person within the organisation; it may be a Helpdesk, it may be the vendor under the terms of a service level agreement.

Type of Problem	Refer To	Contact

4.2. Escalation Procedures

Describe the escalation process to be followed if a reported problem is not resolved within the agreed and expected timeframes.

5. Support Approach

5.1. Monitoring and Control

Describe how the CRVS system is monitored. This could be automated monitoring that notifies a designated contact person if a problem occurs and/or it could mean manually checking some aspect of the system or specific components.

5.2 Backups and Disaster Recovery

5.2.1 Routine Backups

Describe the routine backup process, responsible persons, backups stored off-site, etc. including the test process to ensure the backups are working.

5.2.2 Disaster Recovery

Describe the strategy for responding to unplanned incidents that threaten the CRVS system, which includes hardware, software, networks, processes and people. The aim is to minimise the negative impacts and ensure resumption of normal operations as soon as possible. The plan should identify critical IT systems and networks; prioritise the recovery time objective; and define the steps needed to restart, reconfigure, and recover them. It should include all the relevant contacts, sources of expertise for recovering disrupted systems and a logical sequence of action steps to take for a smooth recovery. This may include fail-over systems, alternative sites, etc.

5.3 Updates/Release Strategy

Describe how to determine when to release a new version of the system.

5.3.1. Release Process

Describe the steps that you will take before the release of an upgrade/ new version of the system. . This may include information about quality assurance testing, review board, change management, acceptance criteria, etc.

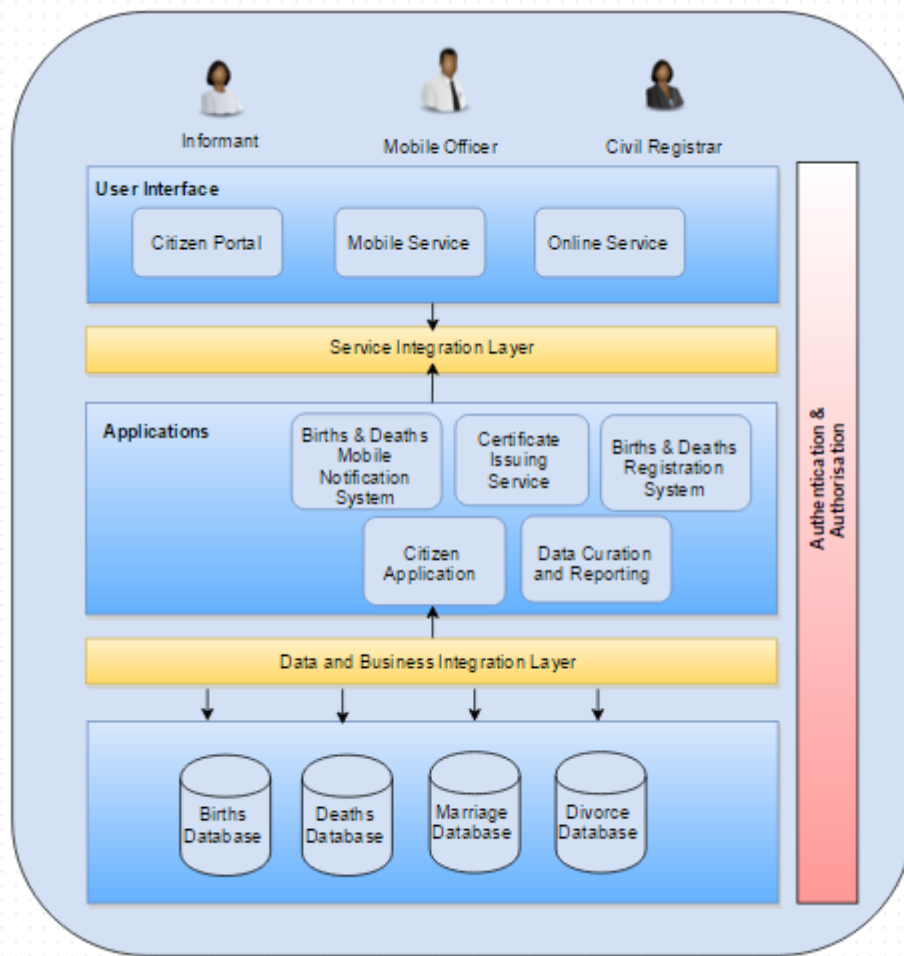
5.3. 2 Regression Test Case

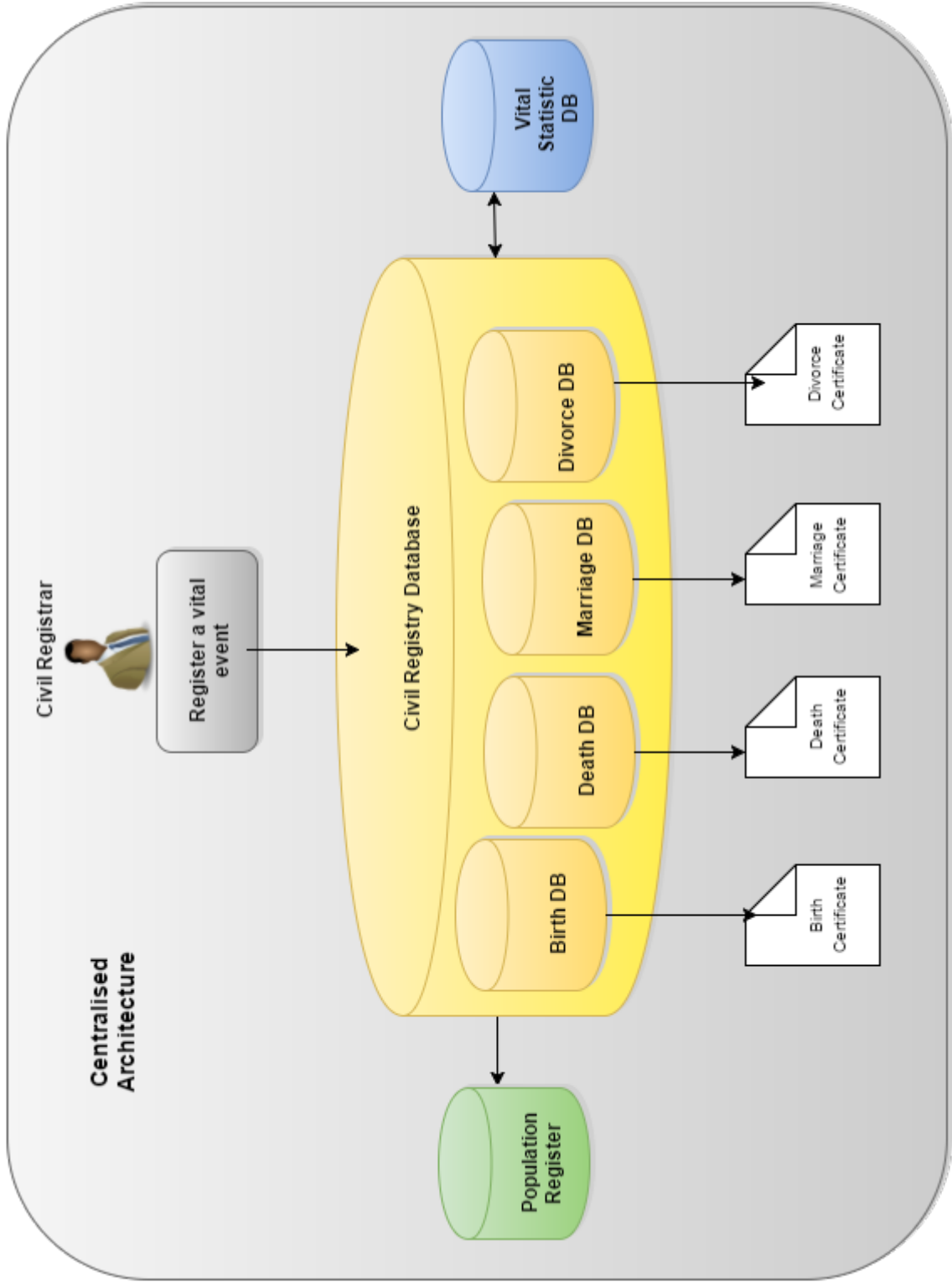
Describe some tests that should always be run when making any system changes to ensure that errors are not introduced when making changes.

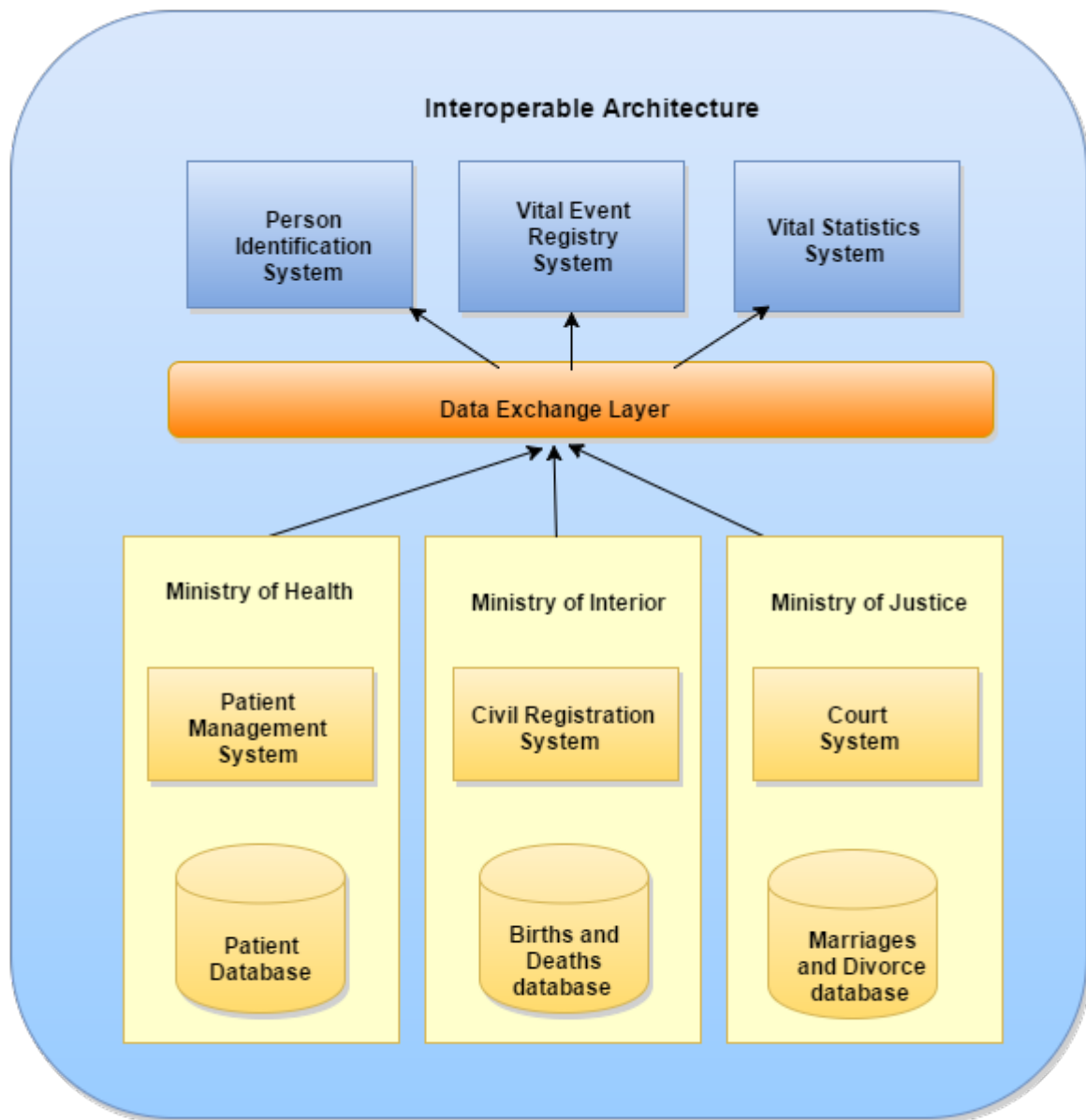
6. Support Resources

6.1. Support Budgets

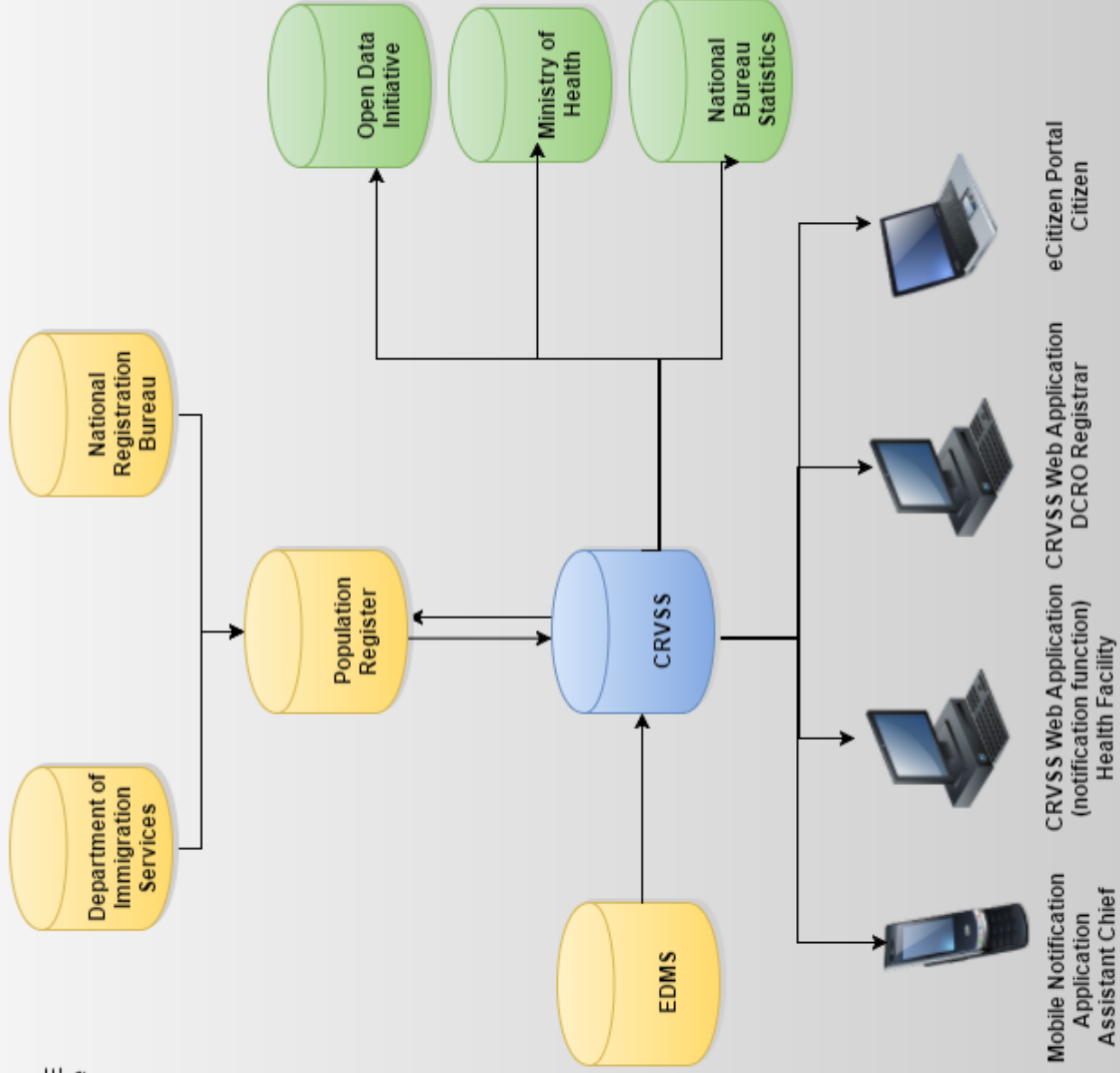
Develop and document cost estimates for providing ongoing support, including personnel, training, software and hardware. Identify timing for when costs are expected to occur as the system and support are developed, deployed, upgraded and expanded.. Consider growth in capacity required, hardware replacement, and system/database software upgrades, licensing fees, etc.

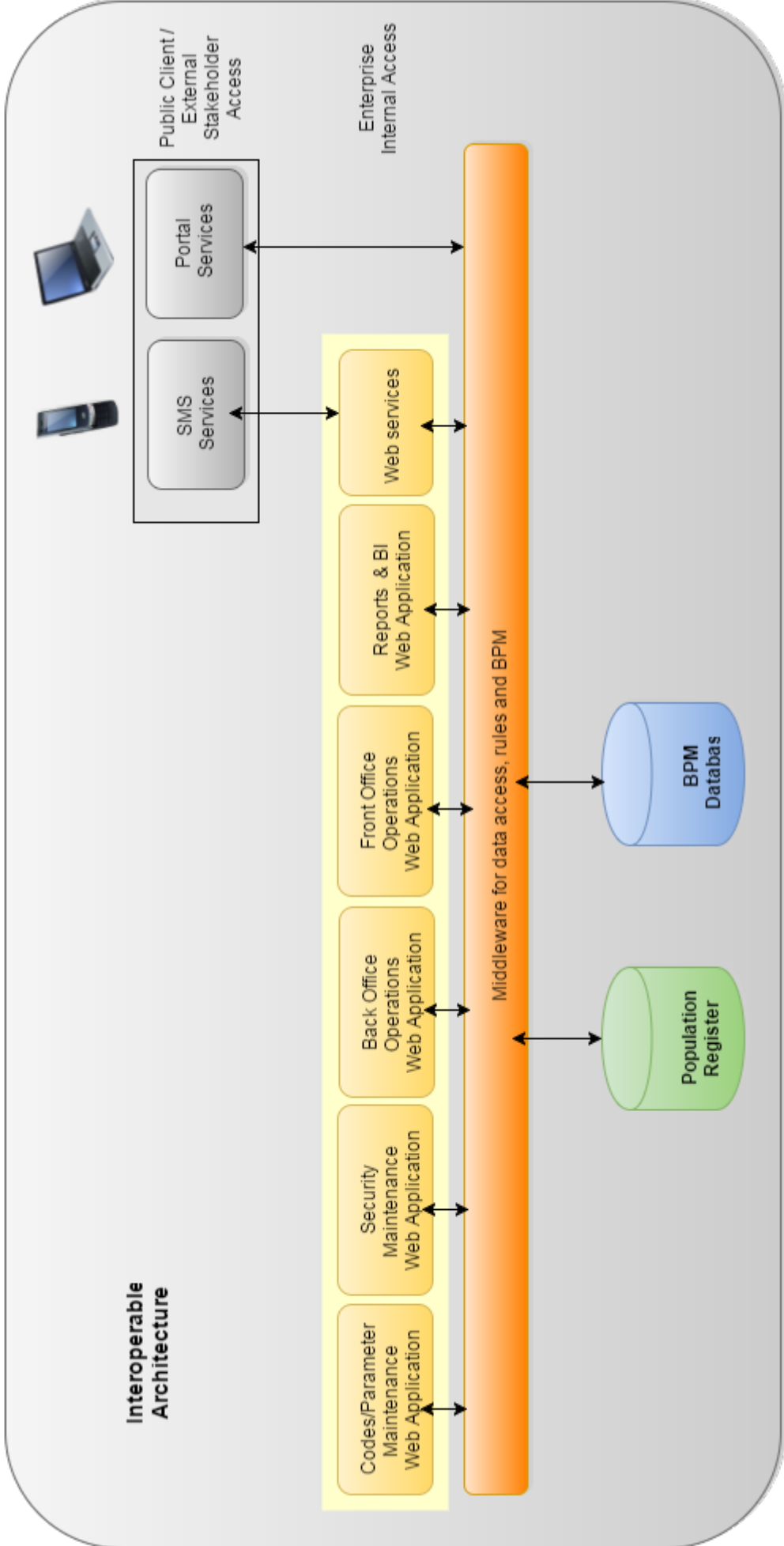






Kenya TO-BE Architecture





CHANGE CONTROL GUIDE

MANAGING CHANGES TO REQUIREMENTS

A **Change Request** is a document containing a request for an adjustment of / change to an architecture, system or project.

Change Request typically originate from one of five sources:

1. users request an enhancement to the system i.e. a new feature
2. users request a change to something that is not working as intended
3. changes in other inter-dependent systems affect the system
4. changes in legislation, policies or standards
5. may also originate from an unclear understanding of the goals and the objectives of the project

The change control process has three main goals:

1. Limiting scope creep
2. Supporting the processing of changes
3. Enabling traceability of changes

There are six main activities which make up the change control process. They are:

1. Identify potential change
2. Analyze change request
3. Evaluate change
4. Plan change
5. Implement change and
6. Review and close change.

These activities are executed by four different roles.

Role descriptions for the change control process for feature requests	
Role	Description
Requestor	The requestor asks for a change due to problems encountered or new functionality requirements; this can be a person or an organizational entity and can be internal or external.
Change manager	The change manager is the owner of the project area that the Change Request concerns.
Change committee	The change committee decides whether a change request will be implemented or not.
Change builder	The change builder is the person who plans and implements the change.

Not all changes have the same impact. Some are relatively easy to implement, others far more complex. Changes also have different priorities and are associated with different levels of risk.

The change request goes to the relevant person or group authorised to make a decision, based on the size of the impact.

This **Change Authority Matrix** should be determined and set out in the Project Initiation Document.

Impact on Time	Impact on Cost	Authorised Decision Maker
Less than x days	None	Technical Lead
More than x day but less than x days	> agreed % of budget	Technical Manager
More than xx days but less than xx days	> agreed % of budget	Project Team
More than xx days	> agreed % of budget	Change Committee

The decision-maker can either:

- **Accept**
- **Reject**
- **Put On Hold** (to be included in a later release of the software or phase of the project)

CHANGE / FEATURE REQUEST PROCESS		
Activity	Sub-activity	Description
Identify potential change	Require new functionality	A requestor desires new functionality and formulates a requirement in the Change Request Form
	Encounter problem	A requestor encounters a problem (e.g. a <u>bug</u>) in the system and this leads to a problem report in the Change Request Form .
	Request change to existing functionality	A requestor proposes a change in a Change Request Form .
Log Change Request		All change requests are sent to the Change Manager and logged with a unique identifier in the Change Request Log where it can be tracked.
Analyse change request	Determine technical feasibility	The change manager, together with the relevant project team members, then performs an analysis of the requested change and what the impact will be. They determine the technical feasibility of the proposed change request.
	Analyse change impact	The change manager estimates time to implement change and therefore estimates the costs and benefits of the proposed change request, as well as what other items the change may affect.
Evaluate change and	Make decision	Based on the change request, its technical feasibility and changes to costs/schedule, the change manager OR change

made decision		committee makes the Accept/Deny/On Hold decision, and updates the Change Request Log accordingly.
	Plan the change	A change plan is created for the implementation of the change. It is also possible to 'save' changes and process them in a later release or later project phase
Implement change	Execute change	The change is made by the change builder.
	Test change	The change builder tests whether has been developed actually works and satisfies the change request.
	Update documentation	The documentation is updated to reflect the applied changes in relevant documentation ie: requirements documents, technical specifications, end-user documentation, etc. Any expected changes to the time or cost should be updated in the project plan budget and Gantt chart.
	Release change	A new system release, which reflects the applied change, is implemented
Review and close change	Close change	This change cycle is completed, i.e. the Change Request Log is updated as complete.

Change Request Form

Project Name:	
System:	
Description:	<i>High level description of the requested change</i>
Document Ref:	<i>Unique Change Request Number</i>
Date Request Submitted:	<i>YY/MM/DD</i>
Submitted By:	<i>Name of Requestor</i>

Required Approvals			
Role:	Name	Date	Approve/Reject
		YY/MM/DD	

1. Description of Change Requested

Describe what needs to be changed

2. Background and Justification

Explain why the change is necessary i.e. what is the problem that must be solved; what are the benefits of the new features being requested; what are the needs that must be addressed.

3. Potential Impact of Change

Who will be affected by the change? What processes will be impacted? What will the impact be on the project scope, timing, cost, staffing and risk? Will anything/anyone/any other systems be impacted?

3.1 Impact on Project Schedule

Describe and quantify the impact on the timeline / schedule

3.2 Impact on Project Budget

Describe and quantify the impact on cost

3.3 Impact on Scope

Describe and quantify the impact on the scope of the system and/or project

3.4 Other Impacts

Describe impact on Staffing/HR, training needs, risk, etc.

4. Implementation of change

Suggested implementation process if the change is approved

User Persona Template

Overview

A user-centred design approach is a key strategy for building a robust, usable system. Scalable, sustainable systems are designed when development teams understand the viewpoint and experience of the users. **User Personas** are fictional characters created to represent the different user types, the challenges they face and their desires for potential solutions. System design teams are better equipped to make empathetic design decisions for their solutions that are based off of the users' needs, motivations, and challenges.

How to develop a User Persona

1. As part of the initial information gathering process, collect and document information from many sources.
2. Brainstorm the different type of users and various characteristics.
3. Interview stakeholders and as many actual end users/ potential end users as is feasible
4. Document the persona using the template below.
5. Look for common patterns i.e. common problems, lack of specific skills, motivation or lack of, etc.
6. Validate the persona. Get feedback from stakeholders who understand the real people that these persona represent.

Template

Persona Name	<i><Create a name for this fictitious person ></i>
Persona Role	<i>< Describe the role this person plays within the CRVS system></i>
About	<i><Describe some characteristics of this person such as gender, age, education level, computer literacy, motivations, concerns, etc. ></i>
Responsibilities	<i><Describe what this person is responsible for in terms of the CRVS system. What work do they do? What do they need to do it? ></i>
Challenges	<i><Describe the challenges that this person faces with regards to their CRVS responsibilities. What problems do they face? What frustrations do they have? What limitations do they encounter? ></i>
Needs & Wants	<i><What benefits would the user expect from this system? ></i>
Environment	<i><Where does this person live/ work? What resources do they have? What limitation are there? ></i>

Func. Req ID	Solution Component	Type	Dependency	Category	Requirement	Weight	Comments
	CRVSS Enhancement		Yes				
	CRVSS Enhancement (Mobile)		Yes				
	CRVSS Enhancement (Mobile)		No				
	Mobile Application (CRVSS Integration)		Yes				
	Mobile Application (CRVSS Integration)		No				
	Mobile Application		Yes				
	Mobile Application		No				

Priority	Description
1	Mandatory, system unacceptable without it
2	Important, Process alternatives will work
3	Nice to have, system is acceptable without it

System Requirements

Req ID	Solution Component	Type	Dependency on other system	Use Case	Requirement	Weight	Comments
FR001	<i>CRVS Central Web Application</i>	Functional	No	Register Birth	The user must be able to open a new blank birth registration form	1	
FR002	<i>CRVS Central Web Application</i>	Functional	No	Register Birth	The user must be able to complete fields under the title of "Characteristics of Birth"	1	
FR003	<i>CRVS Central Web Application</i>	Functional	No	Register Birth	The user must be able to complete field: Child First Name	1	
FR004	<i>CRVS Central Web Application</i>	Functional	No	Register Birth	The user must be able to complete field: Child Family Name	1	

FR005	<i>CRVS Central Web Application</i>	Functional	No	Register Birth	The user must be able to select a checkbox in order to complete the field: Sex	1	
FR006	<i>CRVS Central Web Application</i>	Functional	No	Register Birth	The checkbox options for the "Sex" field must be: Male, Female	1	
FR007	<i>CRVS Central Web Application</i>	Functional	No	Register Birth	The user must be able to complete field: Weight at Birth	1	
FR008	<i>CRVS Central Web Application</i>	Functional	No	Register Birth	The user must be able to complete field: Date of Birth	1	
FR009	<i>CRVS Central Web Application</i>	Functional	No	Register Birth	The user must be able to complete field: Date of Registration	1	
FR010	<i>CRVS Central Web Application</i>	Functional	No	Register Birth	The user must be able to select a checkbox in order to complete the field: Type of Birth	1	
FR011	<i>CRVS Central Web Application</i>	Functional	No	Register Birth	The checkbox options for the "Type of Birth" field must be: Single, Twin, Triplet, Quadruplet, Higher-Multiple Delivery	1	
FR012	<i>CRVS Central Web Application</i>	Functional	No	Register Birth	If the user selects the "Higher-Multiple Delivery" Checkbox, the user must be able to enter free text	1	
FR013	<i>CRVS Central Web Application</i>	Functional	No	Register Birth	The user must be able to complete field: Place of Birth	1	
FR014	<i>CRVS Central Web Application</i>	Functional	No	Register Birth	The user must be able to select from a dropdown list of defined registration locations in order to complete field: Place of Registration	1	
FR015	<i>CRVS Central Web Application</i>	Functional	No	Register Birth	The user must be able to complete fields under the title of "Characteristics of Mother"	1	
FR016	<i>CRVS Central Web Application</i>	Functional	No	Register Birth	The user must be able to complete field: First Name	1	
FR017	<i>CRVS Central Web Application</i>	Functional	No	Register Birth	The user must be able to complete field: Family Name	1	
FR018	<i>CRVS Central Web Application</i>	Functional	No	Register Birth	The user must be able to complete field: Date of Birth	1	
FR019	<i>CRVS Central Web Application</i>	Functional	No	Register Birth	The user must be able to complete field: National ID number	1	
FR020	<i>CRVS Central Web Application</i>	Functional	No	Register Birth	The user must be able to select a checkbox in order to complete the field: Marital Status	1	
FR021	<i>CRVS Central Web Application</i>	Functional	No	Register Birth	The checkbox options for the "Marital Status" field must be: Single, Married, Other	1	
FR022	<i>CRVS Central Web Application</i>	Functional	No	Register Birth	If the user selects the "Other" Checkbox, the user must be able to enter free text	1	

FR023	<i>CRVS Central Web Application</i>	Functional	No	Register Birth	The user must be able to select a checkbox in order to complete the field: Educational Attainment	1	
FR024	<i>CRVS Central Web Application</i>	Functional	No	Register Birth	The checkbox options for the "Educational Attainment" field must be: x, y, z, other	1	
FR025	<i>CRVS Central Web Application</i>	Functional	No	Register Birth	The user must be able to complete field: Place of usual residence	1	
FR026	<i>CRVS Central Web Application</i>	Functional	No	Register Birth	The user must be able to select from a dropdown list of defined countries in order to complete field: Country of Birth	1	
FR027	<i>CRVS Central Web Application</i>	Functional	No	Register Birth	The locations that must be included in the "Country of Birth" dropdown list are: x, y, z, ...	1	
FR028	<i>CRVS Central Web Application</i>	Functional	No	Register Birth	The user must be able to complete field: Number of children born to Mother	1	
FR029	<i>CRVS Central Web Application</i>	Functional	No	Register Birth	The user must be able to complete field: Number of foetal deaths to Mother	1	
FR030	<i>CRVS Central Web Application</i>	Functional	No	Register Birth	The user must be able to complete field: Date of previous live birth	1	
FR031	<i>CRVS Central Web Application</i>	Functional	No	Register Birth	The user must be able to complete fields under the title of "Characteristics of Father"	1	
FR032	<i>CRVS Central Web Application</i>	Functional	No	Register Birth	The user must be able to complete field: First Name	1	
FR033	<i>CRVS Central Web Application</i>	Functional	No	Register Birth	The user must be able to complete field: Family Name	1	
FR034	<i>CRVS Central Web Application</i>	Functional	No	Register Birth	The user must be able to complete field: Date of Birth	1	
FR035	<i>CRVS Central Web Application</i>	Functional	No	Register Birth	The user must be able to complete field: National ID number	1	
FR036	<i>CRVS Central Web Application</i>	Functional	No	Register Birth	The user must be able to complete field: Marital Status	1	
FR037	<i>CRVS Central Web Application</i>	Functional	No	Register Birth	The user must be able to complete field: Educational Attainment	1	
FR038	<i>CRVS Central Web Application</i>	Functional	No	Register Birth	The user must be able to complete field: Place of usual residence	1	
FR039	<i>CRVS Central Web Application</i>	Functional	No	Register Birth	The user must be able to complete field: Place/Country of Birth	1	
FR040	<i>CRVS Central Web Application</i>	Functional	No	Register Birth	The user must be able to submit a birth registration form	1	

FR041	<i>CRVS Central Web Application</i>	Functional	No	Register Birth	On submission of birth registration form, the system must be able to validate (client-side) form field: First Name as character field of maximum 15 characters	1	
FR042	<i>CRVS Central Web Application</i>	Functional	No	Register Birth	On submission of birth registration form, the system must be able to validate (client-side) form field: Family Name as character field of maximum 15 characters	1	
FR043	<i>CRVS Central Web Application</i>	Functional	No	Register Birth	On submission of birth registration form, the system must be able to validate (client-side) form field: Sex when 1 of the checkboxes has been selected	1	
FR044	<i>CRVS Central Web Application</i>	Functional	No	Register Birth	On submission of birth registration form, the system must be able to validate (client-side) form field: Weight as a numerical field between 1 and 10 kgs (decimal points allowed)	1	
FR045	<i>CRVS Central Web Application</i>	Functional	No	Register Birth	On submission of birth registration form, the system must be able to validate (client-side) form field: Date of birth as a date value equal to or before the current date	1	
FR046	<i>CRVS Central Web Application</i>	Functional	No	Register Birth	On submission of birth registration form, the system must be able to validate (client-side) form field: Date of registration as a date equal to or after the date of birth and not beyond the current date	1	
FR047	<i>CRVS Central Web Application</i>	Functional	No	Register Birth	On submission of birth registration form, the system must be able to validate (client-side) form field: Type of birth when 1 of the checkboxes has been selected. If "Higher-Multiple Delivery" was selected, numerical value entered between 1 and 10	1	
FR048	<i>CRVS Central Web Application</i>	Functional	No	Register Birth	On submission of birth registration form, the system must be able to validate (client-side) form field: Place of registration when dropdown option has been selected	1	
FR049	<i>CRVS Central Web Application</i>	Functional	No	Register Birth	On submission of birth registration form, the system must be able to validate (client-side) form field: Marital Status when 1 of the checkboxes has been selected. If "other" was selected, free text entered as character field of maximum 15 characters	1	

FR050	<i>CRVS Central Web Application</i>	Functional	No	Register Birth	On submission of birth registration form, the system must be able to validate (client-side) form field: Educational Attainment when 1 of the checkboxes has been selected	1	
FR051	<i>CRVS Central Web Application</i>	Functional	No	Register Birth	On submission of birth registration form, the system must be able to validate (client-side) form field: Place of usual residence as character field of maximum 15 characters	1	
FR052	<i>CRVS Central Web Application</i>	Functional	No	Register Birth	On submission of birth registration form, the system must be able to validate (client-side) form field: Country of Birth when dropdown option has been selected	1	
FR053	<i>CRVS Central Web Application</i>	Functional	No	Register Birth	On submission of birth registration form, the system must be able to validate (client-side) form field: Number of children born to Mother as a numerical value between 1 and 20	1	
FR054	<i>CRVS Central Web Application</i>	Functional	No	Register Birth	On submission of birth registration form, the system must be able to validate (client-side) form field: Number of foetal deaths as a numerical value between 1 and 20	1	
FR055	<i>CRVS Central Web Application</i>	Functional	No	Register Birth	On submission of birth registration form, the system must be able to validate (client-side) form field: Date of previous live birth as a date at least 7 months prior to the current date	1	
FR056	<i>CRVS Central Web Application</i>	Functional	No	Register Birth	On submission of birth registration form, the system must prompt the user to complete any mandatory fields if 1 or more of the following are incomplete: Date of Birth, Child's Name, Sex, Weight at Birth, Mother's Name, Mother's ID number.	1	
FR057	<i>CRVS Central Web Application</i>	Functional	Yes	Register Birth	On submission of birth registration form, the system must be able to validate that the Mother's ID exists in the National ID system	1	
FR058	<i>CRVS Central Web Application</i>	Functional	Yes	Register Birth	On submission of birth registration form, the system must be able to validate that the Father's ID exists in the National ID system	1	
FR059	<i>CRVS Central Web Application</i>	Functional	No	Register Birth	On completion of validation steps, the system must prompt the user to verify all registration form information through a pop up box	1	

FR060					The pop up box that prompts the user to verify all registration form information must allow the user to "Save" or "Edit" the birth registration form.	1	
FR061	<i>CRVS Central Web Application</i>	Functional	No	Register Birth	When the user selects "Save", the birth registration form must be permanently saved to the central database	1	
FR062	<i>CRVS Central Web Application</i>	Functional	No	Register Birth	The user must be able to select a "Draft" option if they want to save the contents of the form at any time and return to it at a later stage	1	
FR063	<i>CRVS Central Web Application</i>	Functional	No	Register Birth	If the user selects the "Draft" option, the registration form must be saved to the "Drafts" folder for later use	1	
FR064	<i>CRVS Central Web Application</i>	Functional	No	Register Birth	If the system identifies errors during client-side validation, the system must prompt the user to update specific fields	1	
FR065	<i>CRVS Central Web Application</i>	Functional	No	Register Birth	After validation errors are identified, the user must be able to see which fields need to be updated with the fields clearly highlighted in red text	1	
FR066	<i>CRVS Central Web Application</i>	Functional	No	Register Birth	The user must be able to select a "Cancel" option if they want to deletethe contents of the form at any time	1	
FR067	<i>CRVS Central Web Application</i>	Functional	No	Register Birth	If the user selects "cancel" the system must permanently delete the contents of the registration form	1	
FR068	<i>CRVS Central Web Application</i>	Functional	No	Register Birth	If the system is unable to validate the Parent's ID with the National ID system, the system must prompt the user to re-enter the number by highlighting the National ID field in red text	1	
TR001	<i>CRVS Central Web Application</i>	Non-Functional (Technical)	No	N/A	The system must be able to support data capacity projections (including data transmission, processing and storage) for all users over the expected lifetime of the system	1	Capacity
TR002	<i>CRVS Central Web Application</i>	Non-Functional (Technical)	No	N/A	The system's technical design (hardware, databases, etc.) must be able to scale to support projected transaction volumes over time	1	Scalability
TR003	<i>CRVS Central Web Application</i>	Non-Functional (Technical)	No	N/A	The system must provide real-time response to mobile transactions submitted to the central database	1	Response time / latency

TR004	<i>CRVS Central Web Application</i>	Non-Functional (Technical)	No	N/A	The system must be available to end users between 7am and 6pm on workdays	1	Availability
TR005	<i>CRVS Central Web Application</i>	Non-Functional (Technical)	No	N/A	The system must be able to perform in an environment subject to power loss and must accommodate loss of connectivity to hosted application (e.g. when a user is in the process of submitting a form)	1	Reliability
TR006	<i>CRVS Central Web Application</i>	Non-Functional (Technical)	No	N/A	The system must allow users to work offline and then synchronise data when an internet connection is available	1	Reliability
TR007	Mobile Application	Functional	No		The system must ensure that earlier versions of a record that has been updated are recoverable	1	Recoverability
TR008	Mobile Application	Functional	No		The system must ensure backup of data so that all data is recoverable in the event of a system of hardware failure	1	Recoverability
TR009	Mobile Application	Functional	No		The system must support real-time data entry validation and feedback to reduce the possibility of data entry errors	1	Accuracy / Data integrity
TR010	<i>CRVS Central Web Application</i>	Non-Functional (Technical)	No	N/A	The system must support the ability to calculate values on behalf of the user, eliminating the need for them to perform calculations prior to data entry	1	Accuracy / Data integrity
TR011	Mobile Application	Functional	No		The system must provide for the use of drop-down menus, calendars for date entry, and the use of barcode readers where appropriate to enable easier and more accurate data entry	1	Accuracy / Data integrity
TR012	Mobile Application	Functional	No		The system must prevent unauthorised access to citizen's protected personal information	1	Privacy
TR013	<i>CRVS Central Web Application</i>	Non-Functional (Technical)	No	N/A	The system must track and record all changes(update/add/delete) to the data by system and by users	1	Audit
TR014	<i>CRVS Central Web Application</i>	Non-Functional (Technical)	No	N/A	The system must allow authorised system administrators to establish access roles, privileges and priorities	1	Access

TR015	<i>CRVS Central Web Application</i>	Non-Functional (Technical)	No	N/A	The system must support unlimited roles and access levels related to viewing, data entry, editing, deleting, reporting and auditing	1	Access
TR016	<i>CRVS Central Web Application</i>	Non-Functional (Technical)	No	N/A	The system must require each human user to authenticate by role before gaining access to the system	1	Authentication
TR017	<i>CRVS Central Web Application</i>	Non-Functional (Technical)	No	N/A	The system must require each system user to authenticate before gaining access to the system	1	Authentication
TR018	<i>CRVS Central Web Application</i>	Non-Functional (Technical)	No	N/A	The system must provide flexible password control to align with national policy and standard operating procedures	1	Authorisation
TR019	<i>CRVS Central Web Application</i>	Non-Functional (Technical)	No	N/A	The system must have a full set of technical specifications and known issues	2	Maintenance
TR020	<i>CRVS Central Web Application</i>	Non-Functional (Technical)	No	N/A	The system must support the repair or upgrade of a component in a running system or with minimised downtime	1	Maintenance
TR021	<i>CRVS Central Web Application</i>	Non-Functional (Technical)	No	N/A	The system must have a full set of user and implementer-focused documentation	1	Supportability
TR022	<i>CRVS Central Web Application</i>	Non-Functional (Technical)	No	N/A	The system must support extensibility and/or the ability to accept new services or functionality	1	Extensibility
TR023	<i>CRVS Central Web Application</i>	Non-Functional (Technical)	No	N/A	The system must be able to provide continuity and ease of access to data throughout changes in infrastructure at the district civil registration office level	1	Portability
TR024	<i>CRVS Central Web Application</i>	Non-Functional (Technical)	No	N/A	Allow for flexible configurations based on the user environment	1	Configurability
TR025	<i>CRVS Central Web Application</i>	Non-Functional (Technical)	No	N/A	The system must support English. Specifically, all display technologies and software must support the ISO 35.040 character set.	1	Language Support


TR026	<i>CRVS Central Web Application</i>	Non-Functional (Technical)	No	N/A	Allow users to find features within 3 clicks or less	2	Usability
TR027	<i>CRVS Central Web Application</i>	Non-Functional (Technical)	No	N/A	Provide a search function to reduce data entry burden and improve accuracy on mobile devices and web application	2	Usability
TR028	<i>CRVS Central Web Application</i>	Non-Functional (Technical)	Yes	N/A	The system must be able to interface with open source or existing third party reporting tools	1	Interfaces
TR029	<i>CRVS Central Web Application</i>	Non-Functional (Technical)	No	N/A	The system must provide the capability for integration with other systems through an API	1	Interfaces
TR030	<i>CRVS Central Web Application</i>	Non-Functional (Technical)	No	N/A	The system must run on active (powered) equipment operating on specified voltage. All active equipment must include power plugs standard for the country/area.	1	Environmental
TR031	<i>CRVS Central Web Application</i>	Non-Functional (Technical)	No	N/A	The system hardware components must have UPS that will enable equipment to be able to be powered down over a 15 minute timeframe after loss of power	1	Environmental
TR032	<i>CRVS Central Web Application</i>	Non-Functional (Technical)	No	N/A	Unless otherwise specified, all equipment must operate in environments of 10 -30 degrees centigrade, 20-80 percent relative humidity.		Environmental
TR033	<i>CRVS Central Web Application</i>	Non-Functional (Technical)	No	N/A	The system must use open standards to promote interoperability	2	Standards based Interoperability
TR034	<i>CRVS Central Web Application</i>	Non-Functional (Technical)	Yes	N/A	The system must be able to exchange data between systems ensuring semantic interoperability	1	Semantic interoperability
TR035	<i>CRVS Central Web Application</i>	Non-Functional (Technical)	Yes	N/A	The system must allow for the import of quality-checked data from the existing databases	1	Data migration

TR060	CRVSS Enhancement	Functional	No	Validation	When the user selects "Request Executive Approval", the system must prompt the user to select from a dropdown list of options labelled "Reason for Executive Approval": Amendment; Change; Correction.	1	
TR061	CRVSS Enhancement	Functional	No	Reporting	The system must allow the user to select what is included in the report that they are going to generate by selecting each category by checking a box	2	
TR062	CRVSS Enhancement	Functional	No	Reporting	The system must allow the user to select what is included in the report from ALL fields saved relating to a record	2	e.g. By sex, registration date, certification date, age etc
TR063	CRVSS Enhancement	Functional	No	Reporting	The system must display report results in a dashboard format, including numerical values and visual presentations using pie charts / graphs	1	
TR064	CRVSS Enhancement	Functional	No	Reporting	The system must allow the user to choose how the report is showed: numerical table; pie chart; graph; All options	1	
TR066	CRVSS Enhancement	Functional	No	Audit	The system must time stamp each activity in system within the audit trail functionality	3	
TR067	CRVSS Enhancement	Functional	No	Reporting	The system must be able to generate operational reports based on audit information	3	
TR068	CRVSS Enhancement	Functional	No	Reporting	The system must provide an option for the user to generate operational reports based on audit information disaggregated by user, location, date	3	
TR069	CRVSS Enhancement	Functional	No	System Administration	The system admin must be able to define which users have access to which reporting functionality	3	
TR070	CRVSS Enhancement	Functional	No	Reporting	The system must allow authorised users to view specific user operational information. The system must allow the authorised user to search by Registrar/Agent	3	


	CRVSS Enhancement	Functional	No	Reporting	The system must mark B1 Mobile Application forms with a visible certification status: pending, request received, payment received, collected.	3	
	CRVSS Enhancement	Functional	No	System Administration	The system admin must not be able to complete user/registration activities within the system (segregation of roles)	3	
	CRVSS Enhancement	Functional	No	Integration	The system must provide matching fields to the mobile application and be able to store data in the database with the same titles		
	CRVSS Enhancement	Functional	No	Other	The system must be able to operate in offline mode	3	
	CRVSS Enhancement	Functional	No	Other	If system connectivity status changes, the form in progress should be saved in a draft folder	2	
	CRVSS Enhancement	Functional	No	Other	The system should autosave form contents every 10 seconds for recovery purposes	2	
	CRVSS Enhancement	Functional	No	Other	The system must provide a folder on the homepage for "Draft Forms"	2	
	CRVSS Enhancement	Functional	No	Data Transmission	The system must be able to batch data and send to the database automatically when connection to the system is restored	3	
	CRVSS Enhancement	Functional	No	Reporting	The system must provide a new role that allows users to ONLY access the reporting function	2	
	CRVSS Enhancement	Functional	No	System Administration	The system admin must be able to edit report types/data that "Reporting Only" users have access to	2	
	CRVSS Enhancement	Functional	No	Push Notification	The system admin must be able to enter free text into system admin notification and "Submit" the push notification	2	
	CRVSS Enhancement	Functional	No	Push Notification	When the user selects "Submit" after drafting a system admin notification, the user must be prompted to review the push notification and confirm submission	2	

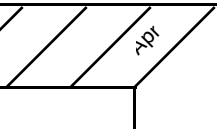
Deployment Pilot		Pending																		
Identify pilot deployment sites		Pending																		
Inform pilot sites of their selection and test change management communications content		Pending																		
Assess infrastructure and hardware requirements for pilot site deployments		Pending																		
Develop ToR for site infrastructure e.g. network connectivity		Pending																		
Develop ToR for site hardware e.g. desktop computers, printer/scanners		Pending																		
Procurement process for site infrastructure		Pending																		
Procurement process for site hardware		Pending																		
Installation of site infrastructure		Pending																		
Delivery of site hardware		Pending																		
Test site infrastructure		Pending																		
Test site hardware		Pending																		
Inform pilot sites of training and deployment dates		Pending																		
Run training session for pilot site staff (lab)		Pending																		
Run training session for pilot site staff (field)		Pending																		
Deploy system		Pending																		
Review pilot deployment with deployment team		Pending																		
Review pilot deployment with pilot site staff		Pending																		
Deployment Scale-Up		Pending																		
Create scale-up deployment plan		Pending																		
		Pending																		
		Pending																		
		Pending																		

Key

 Section Timeframe

 Activity

 Final Deliverable



Request for Proposal

for

**[INSERT DESCRIPTION OF WORK E.G. DEVELOPMENT OF A DIGITAL CRVS SYSTEM IN
XXX]**

[Note. All text in italics provides guidance on how to complete this template. It should be removed from the document prior to being made public.]

Summary of deadlines

Release of Request for Proposal	Date
Confirmation of interest email and fact-finding questions submitted by	Date
Responses to fact-finding questions sent to all interested parties	Date
Proposals due by	Date, Time
Announcement of decision	Date

1. BACKGROUND AND PURPOSE

INSERT details of the context of CRVS in country and why a digital CRVS system is required.

INSERT high-level overview (as below) of what the developer will be expected to do.

*[This Request for Proposal describes the development of a system for vital event registration in XXX. The system developer will be required to design, build and test the system, as well as to provide training on the solution and support the deployment and maintenance of the solution going forward (See **Scope of Work and Activities and Deliverables**).]*

1.1. **[INSERT NAME OF AUTHORITY REQUESTING WORK E.G. CRVS AUTHORITY]**

Insert description of authority requesting work, including what their mandate is.

2. CURRENT STATE OF CRVS

2.1 EXISTING PROCESSES

Insert description of current CRVS processes that are in scope for CRVS digitisation.

For As-Is Process Map see attached file: *[INSERT NAME OF FILE]*

2.2 EXISTING SYSTEM & INFRASTRUCTURE

[Insert description of existing system and infrastructure to provide the Developer with sufficient background to understand the context in which they will be working].

For a technical overview of the existing CRVS system and infrastructure, see attached file: *[INSERT NAME OF FILE]*.

3. PROJECT SCOPE

[Insert description of the wider CRVS improvement project and explain how digitisation fits into this scope]

4. TECHNICAL SCOPE OF WORK

Clearly describe what the technical scope of work for the digital CRVS system is. This should include a system architecture diagram, highlighting the scope of technical work including enhancements to existing applications, as well as the development of new ones as defined in system requirements.

See attached file: *[INSERT NAME OF FILE]*

5. ACRONYMS, KEYWORDS AND DEFINITIONS

Insert commonly used Acronyms, keywords and definitions included in this document.

6. TO-BE BUSINESS PROCESSES

6.1 [INSERT NAME OF TO-BE PROCESS TO BE SUPPORTED BY SYSTEM]

See attached file: *[INSERT NAME OF FILE]* This is the output of Analysis & Design 7: Document Target CRVS Processes.

6.2 [INSERT NAME OF TO-BE PROCESS TO BE SUPPORTED BY SYSTEM]

See attached file: *[INSERT NAME OF FILE]*

7. SOLUTION REQUIREMENTS

See attached file: *[INSERT NAME OF FILE]* This is the output of Analysis & Design 8: Define System Requirements.

The bidder may be asked to evaluate how closely the proposed solution meets each of the major requirements e.g. Meets full requirement, partially meets requirement, planned for development, does not meet requirement, etc.

7.1 USE CASES

See attached file: *[INSERT NAME OF FILE]*

7.2 ENTITY RELATIONSHIP DIAGRAM AND DATA DICTIONARY

See attached files: *[INSERT NAME OF FILE]*

8. REQUIRED COORDINATION WITH PARTNERS

Insert description of any coordination required between the Developer and other parties.

9. DELIVERABLES AND ACTIVITIES

Update/edit the below table with all required deliverables/activities within the scope of work for the Developer.

Ref	Deliverable / Activity
1.	<i>Inception Report</i> Detailed planning document specifying how each activity will be executed. This will include a comprehensive work plan.
2.	<i>Functional & Technical Design Documentation</i> Detailed design documents for the digital CRVS system, including details of how the application architecture promotes a flexible, scalable, secure and cost-effective development approach.
3.	<i>Prototype</i> Working prototype that demonstrates required functionality that can be field tested by end-users.

4.	<i>Hardware and Operating System Requirements</i> Clearly defined hardware and operating system requirements needed to support the digital CRVS system.
5.	<i>System Integration</i> Integration software that allows the integration of the digital CRVS system with XXX, as per the defined requirements.
6.	<i>Application & Integration Testing Plan</i> Detailed plan for all system testing including component, application, integration and user acceptance testing (UAT).
7.	<i>Application & Integration Test Scripts</i> Comprehensive test scripts that will be used to test the digital CRVS system in isolation and with other systems.
8.	<i>Application & Integration Testing & Report</i> <ul style="list-style-type: none"> ▪ Conduct component, application and integration tests (including test environment setup) ▪ Support UAT testing (lab and field). ▪ Detailed write up of the outcomes of all tests, including resolution plans for outstanding bugs/issues and fulfillment of acceptance criteria.
9.	<i>User training</i> <ul style="list-style-type: none"> ▪ <i>Insert description of required training, to which audience etc.</i>
10.	<i>User Manual</i> Comprehensive and easy to read user manual in English and [OTHER LANGUAGE], suitable for those users uncomfortable with technology e.g. including screenshots.
11.	<i>System documentation</i> Comprehensive technical documentation including: <ol style="list-style-type: none"> 1. <u>Coverage</u>: Code that is and is not documented is easily identifiable. 2. <u>Accuracy</u>: The code comments accurately describe the code reflecting the last set of source code changes. 3. <u>Clarity</u>: The system documentation describes what the code does and why it is written that way. 4. <u>Maintainability</u>: A single source is maintained to handle multiple output formats, product variants, localization or translation. 5. <u>Synchronization</u>: The code and documentation are linked to keep them in sync. 6. <u>Completeness</u>: All elements of the application are included in documentation.
12.	<i>Field Pilot & Report ([insert location and # of users])</i> <ul style="list-style-type: none"> ▪ Deployment of all application components to the live environment. ▪ Monitor the end-to-end registration process with users in their natural environment and modify application components as required. ▪ All application component modifications must be documented and presented in a final report.
13.	<i>Deployment & Report ([insert location and # of users])</i> <ul style="list-style-type: none"> ▪ Deployment of all application components to the live environment. ▪ Monitor the end-to-end registration process with users in their natural environment and modify application components as required. ▪ All application component modifications must be documented and presented in a final report.
14.	<i>Support and maintenance</i> <i>Insert length and type of support and maintenance support required.</i>

Note: All deliverables must be provided in draft version subject to review before final version is produced and approved.

10. DELIVERY TIMESCALES

Insert delivery schedule

11. SUBMISSION, REVIEW AND SELECTION PROCESS

11.1 Submission Instructions

*Insert description of how developers should submit their applications e.g. Proposals, in hard and soft copies (preferably password-protected pdf version) must be emailed and dropped in the Tender Box at the reception area of xxx by **day, time, and date:***

11.2 RFP Process and Schedule

Describe the bidding process e.g. open local competition, open regional competition, short-listed competition or sole source.

Insert dates for key activities in the procurement process including bidders conference, notification of application status, announcement of short-lists, oral presentations, announcement of selection.

11.3 Selection Criteria

Update/edit the below table to reflect your selection criteria as defined in Step 1. This should specify both minimum and additional desirable criteria where applicable.

REF.	SELECTION CRITERIA	WEIGHT
SC01	Expertise: Applicants are required to submit comprehensive information on relevant skills and experience. Share your experience in the development of similar software, including details of functionality, technologies used and client contact information. Evidence of building technology that is people-centred, responding to the specific needs of men and women, is also important.	5
SC02	Understanding of the Scope and Requirements: Applicants should show their level of understanding of the project and technical scope in their own words, including the need to address gender equality and child protection issues.	5
SC03	Team: The team structure should be described including the overall number of resources. Summary information for all resources including their speciality, experience, certifications, professional accreditations, level of effort in this assignment, and contribution in similar previous projects should be provided.	10
SC04	Implementation Plan: A Gantt Chart showing all activities, dependencies, milestones and deliverables should be provided, indicating the duration of all project phases.	10
SC05	System Architecture: The applicant must propose a technology architecture which fulfils all defined requirements. This should include recommendations for mobile device specifications.	10

SC06	Requirements coverage: Applicants should indicate their ability to fulfil all specified requirements.	15
SC07	Architecture Standards: Applicants must explain how the proposed architecture promotes a flexible, scalable, secure and cost-effective development approach.	10
SC08	Support Structure: Applicants must provide details of their post-deployment support approach.	10
SC09	Cost: Cost estimates should be competitive and include all relevant costs e.g. broken down into costs for development, software licenses, hardware, testing, indicative running costs, maintenance costs etc. (not exhaustive).	20
SC10	Intellectual Property Rights: all source code and resulting software must belong to Civil Registration Services (CRS).	5

11.4 Selection Dates

Selection of the service provider firm is tentatively set for the **xx/xx/xxxx**.

12. BIDDERS ARE ASKED TO PROVIDE:

A letter expressing their interest in the project, whereby they will be provided with the full documentation, referred to as attachments within this Terms of Reference.

Within the full proposal the bidders are asked to provide:

1. Company profile
2. A detailed technical proposal
3. Curriculum Vitae of all team members
4. 2 client references, for whom similar projects were successfully completed
5. A financial proposal with a detailed breakdown of costs (including VAT):
6. *Insert description of different costing proposals for the solution as required.*

For example, the type of itemized costs for key elements included in the scope of work, such as:

- *Percent participation in total level of effort according to key staff*
- *Rates of key staff*
- *Estimated total level of effort and associated costs.*
- *Itemization of all other costs, categorised by indirect and direct costs. (Indirect costs are overhead/administrative expenses incurred as a result of the project but not easily identified with the project's activities.)*
- *Estimated schedule of anticipated expenses (e.g., travel, sub-contracted resources, supplies, outside resources, etc.).*

12. DISCLOSURE OF INFORMATION

It is understood and agreed that the developer shall, during and after the effective period of the contract, treat as confidential and not divulge, unless authorized in writing by XXX, any information obtained in the course of the performance of the Contract. Information will be made available for the developer on a need-to-know basis.

13. CONTACT DETAILS

If you have any additional questions or need further clarifications, please do not hesitate to contact:

Name	Email Address	Organization
TBC	TBC	TBC

Change Management Approach Template

Change Description

Insert clear, concise description of the change that is taking place.

Key Change Messages

Identify key messages that need to be communicated about the change, these should:

- *Be positive – get people excited about the change that is coming.*
- *Explain exactly what the change is.*
- *Explain how the change will benefit each individual.*
- *Be targeted to specific audiences; each actor has different needs – identify and target them.*

Key Project Resources

Complete the below table (content example only), clearly defining which actors are responsible for change management activities within the Project Team.

Role Title	Description
<i>Change Management Lead</i>	<i>Responsible for defining the change management approach; establishing the “Change Champion” network; signing off on communication content and design.</i>
<i>Communications Manager</i>	<i>Responsible for defining communications frequency and content.</i>
<i>Business Analyst</i>	<i>Responsible for coordinating with the deployment team to align change management communications with the schedule; managing the communications schedule and keeping track of communications.</i>

Change Champions

Identify appropriate people across the organisation to act as “Change Champions”; individuals across all levels of the organisation who actively advocate for, facilitate and support the change amongst the teams in which they work. Document who these people are, what specific responsibilities they have, and what training they will be given to effectively inform and prepare them to support the change.

Who

Responsibilities (pre and post-deployment)

Training

Target CRVS Processes: Roles and Responsibilities

Identify all actors involved in the new CRVS process and what their roles and responsibilities are. This will ensure that each of these actors receives targeted change management and communications messages that will increase the likelihood of acceptance and buy-in.

Post-Deployment Support

Describe what post-deployment support will be given to users after initial Day-1 support (technical support following system deployment). This should include ongoing monitoring of user feedback via Change Champions AND Technical resource check-ins of sites that have recently been deployed.

If a Help Desk service will be provided define how users will use this and how raised issues will be tracked for monitoring and evaluation purposes.

Communications Plan

A Communications Plan is a phased plan that clearly shows when each type of communication will be disseminated to each actor in relation to the deployment date. This needs to be drafted in collaboration with the Deployment Team to ensure that the correct technical messages are documented and the timings align with deployment dates.

To define a Communications Plan, first complete the below table identifying who needs to be communicated to when and through which method. Both direct communications (via email, letter, verbal) and Indirect communications (Posters, flyers etc.) will be included in the Plan.

Communications Plan continued

Complete the below communications plan template to reflect your deployment needs (the below is ONLY an example). Note. It is important to have identified which communication methods are most relevant for each user type and to begin communications far in advance of actual deployment in order to establish the change as the “norm” well in advance of users experiencing it.

Communication	Content	Responsible	Lead Time	Format
Introductory Communication 1	<ul style="list-style-type: none"> ▪ Clearly describe change ▪ Eye-catching, recognisable design ▪ Positive message about the change. 	Communications Manager	T-5 months	Poster
Introductory Communication 2	<ul style="list-style-type: none"> ▪ Clearly describe change ▪ What is happening now? ▪ Positive message about the change. 	Communications Manager	T-4 months	Email
...
First indirect communication	<ul style="list-style-type: none"> ▪ Clearly describe change ▪ Eye-catching, recognisable design ▪ Positive message about the change. 	Change Champion to put up	T-7 Weeks	Poster
First direct communication (User)	<ul style="list-style-type: none"> ▪ Description of change. ▪ Introduction to further communications (what is next?) ▪ How will the change benefit the individual? 	Communications Manager	T-6 Weeks	Email
First direct communication (Senior Stakeholder)	<ul style="list-style-type: none"> ▪ Description of change. ▪ Introduction to further communications (what is next?) ▪ How will the change benefit the individual? 	Communications Manager	T-6 Weeks	Email
Second direct communication (User)	<ul style="list-style-type: none"> ▪ Positive messages about the change. ▪ How the change will affect the team. ▪ When the change will happen 	Team Leader	T-4 Weeks	Verbal (Team Meeting)
Second indirect communication	<ul style="list-style-type: none"> ▪ Benefits of change ▪ Eye-catching, recognisable design ▪ When the training will happen ▪ When the change will happen 	Change Champion to put up	T-5 Weeks	Poster
Third direct communication (User)	...	...	T-2 Weeks	
Third direct communication (Senior Stakeholder)	...	...	T-2 Weeks	...
Third indirect communication	<ul style="list-style-type: none"> ▪ Benefits of change ▪ When the change will happen 	Change Champion to put up	T-2 Weeks	Poster

Fourth direct communication (User)	...	...	T-1 Week	Email
Fifth direct communication (User)	...	...	T-1 day	Verbal (Team Meeting)
...

Deployment Approach

Note. The content of this approach assumes deployment of a fictitious solution. The deployment approach will need to be specific to the solution that is being rolled out.

Description of Technical Solution Being Deployed

Insert description of the technical solution that is being deployed.

Deployment Team

Update the table below to clearly define the roles of the Deployment Team

Role Title	Description
<i>Project Manager</i>	<i>Responsible for defining the deployment approach; overall planning and management of all project resources; managing stakeholder communications and requirements.</i>
<i>Communications Manager</i>	<i>Responsible for implementing the communications plan as defined in the Change Management approach.</i>
<i>Scheduling Lead</i>	<i>Responsible for managing the pre-scheduling checklist and feeding this data into the schedule; responsible for deployment scheduling.</i>
<i>Cutover Team</i>	<i>X Deployment Engineers responsible for going to site and deploying the solution; day-1 support; logging of deployment issues and reporting these back to the Business Analyst and Project Manager.</i>
<i>Developer</i>	<i>Responsible for technical training; updating the solution to address identified issues.</i>

Training

Describe what training each member of the Deployment Team needs to effectively fulfil their defined roles e.g. training in the technical solution; issue logging and escalation; issue resolution.

Pilot

Insert details of the pilot including:

- *Which sites in which region will be deployed when?*
- *Why have these sites been selected for the pilot?*
- *What staff will be onsite and from what point?*
- *What Day-1 Support is there e.g. the day after deployment what support is available on and off site to support with any issue that may arise?*
- *How will identified issues be recorded, resolved and fed back to the project team to ensure that the solution/issues are addressed before mass deployment.*
- *When and who will attend a pilot review to discuss events and identify key issues that need to be resolved?*

Ramp-Up

Describe how deployment will be gradually ramped up after the pilot in order to effectively build deployment capabilities.

Mass Deployment

Define the maximum number of sites that will be deployed per night/week due to resource and technical constraints.

Describe the team size and structure during this period.

Indicative Timelines

Define high-level indicative timelines for deployment per region. This should be shared with Business Units via the Change Champion Network/Civil Registrar (Site Leads) as a first view of deployment plans.

Phase	Region	# of Deployment Sites	Start	End
PILOT	INSERT REGION	INSERT NUMBER	INSERT START DATE	INSERT END DATE
RAMP-UP				
MASS DEPLOYMENT				

Deployment Planning Activities

Pre-Scheduling Checklist

Define a list of criteria that each site needs to fulfil before it is officially given a deployment date, as per the below example. This list should be maintained as the sole source of input into the deployment schedule.

This list will be different for different types of deployment e.g. data migration will require a separate checklist.

Site ID	Site Name	Ready to Schedule	Connectivity	Hardware Onsite	Change Champion Identified	Change Champion Trained	Comms Materials Sent	Training Scheduled	Training Complete
0000001	Test1	✓	✓	✓	✓	✓	✓	✓	✓
0000002	Test2	✗	✓	✓	✗	✗	✗	✓	✗
0000003	Test3	✗	✗	✗	✓	✓	✓	✓	✓
0000004	Test4	✗	✓	✗	✗	✗	✗	✓	✓
0000005	Test5	✓	✓	✓	✓	✓	✓	✓	✓
0000006	Test6	✓	✓	✓	✓	✓	✓	✓	✓

Deployment Schedule

The Deployment Schedule will be updated and maintained by the Business Analyst and approved by the Project Manager. The Business Analyst will schedule sites only when they fulfil all of the criteria in the Pre-Scheduling Checklist as defined above.

Update the Deployment Plan Template to reflect the specifics of your deployment and solution requirements.

Deployment SOE

Define a sequence of events that every engineer will complete when they go to site for a deployment e.g.:

Day before Deployment

1. Visit site to confirm that site is fully ready e.g. connectivity checks, hardware ready etc.
2. Meet with Change Champion/Civil Registrar (Site Lead) to explain SOE for the next 2 days.
3. Answer staff questions.

Day of Deployment

1. Engineer arrives onsite at 3pm.
2. Engineer checks in with Civil Registrar and Change Champion and explains deployment activities.
3. Engineer begins deployment at 00:00 by.... (this will be technology/solution specific.)
Engineers should be trained in the correct deployment process).
4. Engineer tests each machine with defined activities e.g. register test birth.
5. Engineer turns off all machines.
6. Engineers locks office.

Day-1 Support

7. Engineer arrives on site at 7am.
8. Engineer supports users with first login.
9. Engineer records any issues and resolves.
10. Issues that the engineer cannot resolve himself will be dealt with by...
11. Engineer completes post deployment form noting down all issues resolved and open.
12. Engineer debriefs Civil Registrar and Change Champion.
13. Engineer leaves site and reports back to PM.

Assessing Deployment Success

Define criteria of a successful deployment e.g. when the site is counted as "Deployed/Complete" e.g.

- ✓ Solution deployed to all machines
- ✓ All identified issues resolved
- ✓ All staff can use the system without any major issues
- ✓ Civil Registrar (Individual responsible for site) signs off deployment

This criteria should be shared with the full Deployment Team and key project stakeholders so that it is tracked assessed after each deployment. Deployment Engineers should confirm that all criteria is fulfilled after deployment and feed this back to the project team.

If the above criteria are not met, define what actions will be taken e.g. is rollback an option?

Issue Tracking & Resolution

Create an issue tracking tool (example below) in order to keep track of all solution and deployment issues encountered during deployment. This tool should be updated and maintained throughout the deployment process and should be fed back to the whole Deployment Team, specifically:

1. The Communication Manager, to update communications with FAQs that reflect commonly experienced issues and how users can respond to them.
2. The Developers, to make permanent solution changes as required.
3. The Project Manager, to ensure that major issues are escalate appropriately.
4. The Cutover Team to ensure that everyone knows how to resolve each technical issue and to share lessons learned.

Issue ID	Issue Name	Date Captured	Description	Status	Owner	Description of how to resolve	Logged By	Location
0000001	Issue1	01/01/2020	User unable to login	Resolved	Engineer	On first login, user must enter credentials twice	Joe Bloggs	Location 27
0000002	Issue2	02/01/2020	Field missing: cause of death	Issue Raised	Developer	Developer to add field	John Smith	Location 21
0000003	Issue3	03/01/2020	Unable to save birth record	Pending	Engineer	Speak to developer	Sarah Jones	Location 21
0000004	Issue4	04/01/2020						
0000005	Issue5	05/01/2020						
0000006	Issue6	06/01/2020						

Define Reporting Requirements

Update the below table, clearly outlining regular reports that need to be shared with key stakeholders.

For each report defined below, create a report template that can be re-used each week.

Report Name	Description	Audience	Frequency
<i>e.g. Weekly Digitisation Deployment Status</i>	<i>Summary of the week's deployments: # of successful deployment, failed deployments, location of deployments, # of deployments scheduled the next week</i>	<i>Senior Stakeholders incl. CRVS Steering Committee</i>	<i>Once weekly (end of week)</i>

Site ID	Site Name	Region	Ready for Scheduling	Scheduled	Status	Deployment Date	Deployment Engineer	# of machines	Communication Plan Complete
0000001	Test1	Region 1	Yes	Yes	Complete	2020/01/01	Name of Engineer	5	Yes
0000002	Test2	Region 2	No	No	Pending	No Date	Name of Engineer	4	No
0000003	Test3	Region 3	No	No	Pending	No Date	Name of Engineer	3	No
0000004	Test4	Region 1	Yes	Yes	Complete	2020/01/01	Name of Engineer	8	Yes
0000005	Test5	Region 2	No	No	Pending	No Date	Name of Engineer	2	No
0000006	Test6	Region 3	No	No	Pending	No Date	Name of Engineer	3	No
0000007	Test7	Region 1	Yes	Yes	Complete	2020/01/01	Name of Engineer	1	Yes
0000008	Test8	Region 2	No	No	Pending	No Date	Name of Engineer	9	No
0000009	Test9	Region 3	No	No	Pending	No Date	Name of Engineer	5	No
0000010	Test10	Region 1	Yes	Yes	Complete	2020/01/01	Name of Engineer	5	Yes
0000011	Test11	Region 2	No	No	Pending	No Date	Name of Engineer	5	No
0000012	Test12	Region 3	No	No	Pending	No Date	Name of Engineer	4	No
0000013	Test13	Region 1	Yes	No	Pending	No Date	Name of Engineer	3	No
0000014	Test14	Region 2	No	No	Pending	No Date	Name of Engineer	6	No
0000015	Test15	Region 3	No	No	Pending	No Date	Name of Engineer	2	No
0000016	Test16	Region 1	Yes	No	Pending	No Date	Name of Engineer	9	No
0000017	Test17	Region 2	No	No	Pending	No Date	Name of Engineer	1	No
0000018	Test18	Region 3	No	No	Pending	No Date	Name of Engineer	1	No
0000019	Test19	Region 1	Yes	Yes	Scheduled	2020/01/07	Name of Engineer	3	Yes
0000020	Test20	Region 2	No	No	Pending	No Date	Name of Engineer	2	No
0000021	Test21	Region 3	No	No	Pending	No Date	Name of Engineer	5	No
0000022	Test22	Region 1	Yes	Yes	Scheduled	2020/01/07	Name of Engineer	6	Yes
0000023	Test23	Region 2	No	No	Pending	No Date	Name of Engineer	3	No
0000024	Test24	Region 3	No	No	Pending	No Date	Name of Engineer	2	No
0000025	Test25	Region 1	Yes	Yes	Scheduled	2020/01/07	Name of Engineer	2	Yes

Training Approach & Plan

Training Groups

Complete the below table (content includes commonly required training groups), identifying all groups of people who require training in the digital CRVS system and processes:

1. Which internal resources need to be trained in the use and administration of the digital CRVS system and processes?
2. Who are the end users and what is their current technical understanding and capacity?

Actor	Training Needs	Technical Capacity
Who needs to be trained?	What do they need to know/be able to do?	What is their technical capability? How confident are they in using technology?
e.g. End-User in Registry office	Need to be able to use the system to register births and deaths, amend/correct records, and navigate the system comfortably.	Comfortable in the use of standard desktop applications such as Microsoft Word. Currently use paper-process.
e.g. End-User in the field	Need to be able to use the mobile device to capture vital event registrations and understand end-to-end CRVS system processes.	Competent in the use of a mobile device.
e.g. Central CRVS IT Staff	Need to be able to administrate the system, be confident in all system workflows, and resolve system issues.	Experienced System Administrator, never used this system before.
e.g. CRVS Management Staff	Need to understand the new end-to-end CRVS processes, the new organisational structure and how this impacts the organisation.	...
e.g. Statisticians	Need to be able to effectively use the system to access vital statistics data, define and create valuable vital statistics reports, and learn how to use civil registration data for vital statistics purposes.	...

Training Curriculum & Materials

Based on the training needs identified above, define required training topics for each user and develop a training curriculum and materials.

Complete the below table to inform the development of a full training curriculum for each actor. Included in the table are suggested training topics that every CRVS Digitisation Project will require.

Actor	Training Topic	Description	Objective
	CRVS Principles		
	CRVS System Training		
	CRVS System Administration		

	<i>CRVS Process Training</i>		
	<i>Vital Statistics Training</i>		

Define who is responsible for creating training curriculum and materials for different topics. Consider:

- *Technical handbooks and training manuals should be documented by the system developer.*
- *Easy-to use user-manuals may need to be documented by a Comms specialist based on training by the developer.*
- *General training in computer-use could be created by an internal IT resource.*

Training Environment

Define what training environment will be used to simulate use of the system with users.

Learning Materials and Platforms

Define what permanent training resources are required and what form these will be in, examples below. Consider:

- *What system documentation is needed?*
- *What permanent training materials are needed?*
- *What format should these training materials be in? Is an eLearning platform appropriate?*

Name	Description & Purpose
<i>System Documentation</i>	<i>This should include comprehensive detail of all code and configuration that allows the permanent CRVS IT staff to maintain and update the system as required.</i>
<i>System User-Training Handbook</i>	<i>Paper/online training handbook that contains written content of all training modules as well as advanced modules that facilitate ongoing learning</i>
<i>eLearning Tool</i>	<i>Online learning tool that contains all training modules as well as advanced modules that facilitate ongoing learning. New users can also use this tool for self-learning. Users are assessed as they progress through the online content.</i>

Testing Approach & Plan

Testing Phases

Define what types of tests will be conducted on the digital CRVS system. Included below are a list of recommended test phases.

Testing Phase	Description	Responsible Tester
Component & Assembly Test	When software components are tested in isolation and together.	Developer
Product Test	When the software is tested to confirm fulfilment of functional requirements.	Developer (observed by Testing Team)
System Integration Test	When the software is tested with other systems to confirm fulfilment of integration requirements.	Testing Team
User Acceptance Test	When end-users test defined use-cases and scenarios to prove that the system is fit for purpose.	End-Users
Performance Test	When the software is tested for speed and/or effectiveness as defined in non-functional requirements.	Developer (observed by Testing Team)
Stress Test	When the system is tested to breaking point to assess characteristics of system failure.	Developer (observed by Testing Team)

Test Environments

A number of different test environments are required throughout the testing phase. Define what test environments you need for each testing activity. A minimum set of suggested environments is included below:

Environment Type	Description	Tests completed in environment
Development Environment	Contains everything needed by a team to build and deploy software, including the processes and programming tools used to create the software product.	Component Assembly
Test Environment	Environment in which the new system is tested by testers and end-users.	Product UAT Integration
Training Environment	Environment in which real end-users can simulate production tasks, testing the software product with dummy data that looks and feels like the real thing.	
Production Environment	Real-live environment that hosts the software product that will be used and managed by real end-users with real data.	Performance Stress

Phase Containment

Define a clear phase containment policy, including the maximum number and severity of defects that can be carried through to the next testing phase.

Acceptance Criteria

Define acceptance criteria using the target use cases and scenarios. These criteria will act as the final check before signing off the system.

Defect Management and Resolution

Identify where defects will be tracked and managed. At a minimum, defects should be logged with the following details:

- *Unique number*
- *Title*
- *Defect Description incl. What the user did, what was expected to happen, what did happen.*
- *Tester Name (who identified the bug)*
- *Testing Date (when was the bud identified?)*
- *Test Case*
- *Test Data*
- *Severity*
- *Status*
- *Software version of fix*