Understanding the costs of an OpenCRVS implementation

OpenCRVS is a free open-source software and available as a Digital Public Good, meaning there are no licence fees to pay. However, there are a number of other costs that need to be considered when evaluating the Total Cost of Ownership (TCO) of a digital CRVS system. This includes the upfront costs to develop and rollout the system at a National scale, but also the long term costs that will be incurred year-on-year to operate and maintain the system.

Using OpenCRVS can help reduce your TCO, including the following:

- OpenCRVS is open-source, hence there are no restrictions on who can deploy and maintain the solution in a country and no ties to specific vendors. This allows you the flexibility to use a government IT team or a local technology services provider.
- OpenCRVS is configurable for your context in just a week, so you can quickly test in field conditions and assess any additional requirements.
- New functionality required for your specific context can feed into the OpenCRVS core product roadmap so you don't have to develop it yourselves.
- OpenCRVS freely available training courses upskill government and local resources to reduce international resource requirements.
- OpenCRVS utilises a progressive web app that will run on any android based mobile phone, meaning that low-spec devices or even personal mobile phones can be used.
- OpenCRVS does not have a limited warranty period - the core product is maintained centrally for all implementing countries, meaning all patches, fixes and new features are made available at no cost.

For a full breakdown of the typical cost categories for an OpenCRVS implementation along with notes of where OpenCRVS can help reduce the overall TCO, see the OpenCRVS Implementation Costs.

System development

Description of cost	Cost drivers	Reduced TCO using OpenCRVS

Adaptation of OpenCRVS product for the local context	• Complexity of requirements • Capacity of government staff and local implementers	• OpenCRVS freely available training courses upskill government and local resources to reduce international resource requirements • OpenCRVS documentation provides details of the business processes supported and functionality available, which can be mapped directly to requirements • OpenCRVS is configurable for your context in less than a week, so you can quickly test in field conditions and assess additional requirements • OpenCRVS can be implemented by local development team, which can be identified through competitive tender process • New functionality required for your specific context can feed into the OpenCRVS core product roadmap so you don't have to develop it
Integration of OpenCRVS with other eGov systems (e.g. health systems, identity management systems)	• Number of interfacing systems • Complexity of legacy interoperability frameworks • Capacity of government staff and local implementers	• OpenCRVS uses open data standards (HL7 FHIR) to reduce the effort required to integrate systems • Pre-configured web hooks and APIs are available for standard use cases (e.g. publishing vital events for subscribing systems) that have been tested for integration with DHIS2 and MOSIP
User testing of OpenCRVS in both lab and field conditions	• Complexity of requirements • Variety of rollout contexts (e.g. low-connectivity rural, urban metropolis)	• OpenCRVS comes with a reusable testing suite so you only need to develop tests specific to your configuration • Operational performance management tools in OpenCRVS provide an easy way to monitor field tests and evaluate the overall effectiveness of the CRVS strengthening programme, including completeness rates, data quality and client satisfaction.
Technical testing of OpenCRVS, including performance and security tests	• Legal and regulatory landscape	• The default OpenCRVS configuration has undergone extensive technical testing to ensure it meets the highest international security standards and most extreme performance requirements.

Deployment and scaleup

Description of cost	Cost drivers	Reduced TCO using OpenCRVS

System hosting infrastructure	• Availability of eGov data centre and shared services • Legal and regulatory landscape that defines where data must reside	• OpenCRVS can run in a virtualized or physical environment in a private or public cloud, providing a multitude of hosting options at different levels of cost.
Office equipment / infrastructure required to support digital processes (e.g. computers, printers, data connectivity, universal power, physical security)	• No. of registration offices • Current level of infrastructure	• OpenCRVS is a web-based application that will run on any laptop / desktop computer with a Chrome web browser, meaning existing hardware can be reused.
Staff devices such as tablets and mobile phones for use in field conditions	• No. of registration staff • Device specifications	• OpenCRVS utilises a progressive web app that will run on any android based mobile phone, meaning that low-spec devices or even personal mobile phones can be used.
Change Management for the introduction of digitally enabled SOPs	• Number of users and audiences • Cultural homogeneity of rollout locations • Capacity of local training teams	
Training for OpenCRVS system users (e.g. Registrars, management roles, system admin, application maintenance and support)	• Number of users • Geographic spread of rollout locations • Duration of training • Capacity of local training teams	• OpenCRVS provides freely available user training materials that can be reused and adapted for local use. • OpenCRVS was designed with users using human-centred design techniques, making it a highly intuitive user experience, reducing the user training requirements.
Migration of legacy data	• Quality / cleanliness of legacy data	• OpenCRVS uses a NoSQL database, which provides a more resilient data model and independence from determined schemas, which will facilitate data migration.

Digitisation of legacy paper records	• Legibility of paper records • Quantity of records requiring digitisation	
Community engagement and mobilisation	Geographic spread of rollout locations Cultural homogeneity of rollout locations	• OpenCRVS enables registration services at the community level, which will facilitate community engagement.
Legal and regulatory reforms required for digital civil registration processes	Degree to which laws are out of date	• OpenCRVS implements international standards of privacy and data protection, assisting compliance with the most stringent regulations.
Monitoring and evaluation during rollout	• Scale and speed of rollout	• Operational performance management tools in OpenCRVS provide an easy way to evaluate the effectiveness of the CRVS strengthening programme, including completeness rates, data quality and client satisfaction.
Transfer of system ownership	• Capacity of government staff and local implementers	• OpenCRVS is fully documented in the public domain, thus reducing the time taken for system ownership.

Ongoing Operations

Description of cost	Cost drivers	Reduced TCO using OpenCRVS
Hosting infrastructure	• System usage (depending on hosting arrangements)	• OpenCRVS can run in a virtualized or physical environment in a private or public cloud, providing a multitude of hosting options at different levels of cost.

Software licences (costs of using the software in a live environment)	• N/A	• Zero cost. The entire OpenCRVS software stack is built on free and open-source software (FOSS) for which there are no associated costs .
Hardware maintenance and replacement (office infrastructure and user devices)	• Replacement rates • Level of work environment extremity	• In extreme environments it is recommended to use OpenCRVS on ruggedised laptops / tablets to lower replacement rates.
Refresher training sessions	• Staff attrition • Frequency of retraining	• OpenCRVS provides freely available user training materials that can be reused and adapted for local use. • OpenCRVS was designed with users using human-centred design techniques, making it a highly intuitive user experience, reducing the user training requirements.
Service management support to handle queries (i.e. via a helpdesk)	• Scale of the deployment • Capacity of local IT team	• A range of monitoring tools are made available as standard with OpenCRVS to help service management teams to quickly identify and resolve issues.
Application maintenance (security patches, defect fixes, new features)	• Capacity of local IT team • Complexity of new features	• OpenCRVS is open-source, hence there are no restrictions on who can maintain a country application and no ties to specific vendors. This allows you the flexibility to use a government IT team or a local technology services provider. • OpenCRVS does not have a limited warranty period - the core product is maintained centrally for all implementing countries, meaning all patches, fixes and new features are made available at no cost to the implementers. • New functionality required for your specific country context can feed into the OpenCRVS product roadmap so you don't have to develop it. • Tier 3 technical support is made available at no cost from the OpenCRVS core team • As part of the OpenCRVS community you benefit from peer-to-peer support for common issues encountered.

Mobile network costs including data and text messages	• No. of field-based agents requiring mobile connectivity • Large file size (e.g. image) requirements • Update messaging requirements • Partnership opportunities with the MNO	• OpenCRVS has been designed to minimise the amount of data being transferred between field-based operations and the server. • Offline mode allows field based users to synch their local data when they have access to a fixed line data and save on expensive mobile data charges.
Fixed line data costs	• Digital infrastructure for other local services	• OpenCRVS has been designed to minimise the amount of data being transferred between field-based operations and the server.
Power for maintaining local digital civil registration services	• System usage	

Acknowledgement: Inputs from The Principles for Digital Development "How to Calculate Total Lifetime Costs of Enterprise Software Solutions"

Please get in touch with us at team@opencrvs.org and we can discuss what an OpenCRVS implementation would likely cost in your context.