

ANNUAL REPORT 16/17

SOUTH AFRICA RWANDA MOZAMBIQUE ZAMBIA



Acronyms

ANSA	Anaesthesia Network South Africa
CDC	United States Centers for Disease Control
DATIM	Data for Accountability Transparency Impact Monitoring
ECOWAS	Economic Community of West African States
FHIR	Fast Healthcare Interoperability Resources
GIS	Geographic Information System
HMIS	Health Management Information Systems
IGAD	Intergovernmental Authority on Development
MSH	Management Sciences for Health
NHLS	National Health Laboratory Service
PHR	Personal Health Record
RSSB	Rwanda Social Security Board
SARA-MFL	Service Availability Readiness Assessment-Master Facility List
SI-M&A	Monitoring and Evaluation Information System (Mozambique)
SIS-MA	National Health Information System for Monitoring and Evaluation (Mozambique)
SIS-ROH	Intra-Hospital Death Registration System (Mozambique)
SOP	Standard Operating Procedure
WAHO	West African Health Organisation

Jembi's annual report is published as open access under a Creative Commons ShareAlike 3.0 Unported (CC BY SA 3.0) licence (creativecommons.org/licenses/by-sa/3.0/deed.en) and is available in both print and electronic formats. The content of this report and the opinions expressed herein are solely the responsibility of the authors and do not necessarily represent the official views or policies of any of the funders.

Design by
Jennifer Geib {writing + design}



Contents

Letter from the Chairman	4
Letter from the Chief Executive Officer	5
South Africa Programme	6
Blood Safety Strengthening Programme	12
Mozambique Programme	17
Regional Programme	22
Corporate Services Overview	25
Research & Publications	27
Jembi Board & Staff	28
Jembi in Words	29
Jembi Collaborators	30

Letter from the Chairman

It is my pleasure to present the Annual Report of Jembi Health Systems for 2016/2017. Jembi continues to show impressive positive growth and innovation year upon year within a challenging international environment. As a result of its forward-looking management, technical excellence and strong internal systems, the team has secured a significant number of new projects, expanded into Zambia and strengthened its presence in South Africa over the past financial year. At a time when many non-profit organisations are struggling to attract donors, Jembi has continued to grow, both in staff and in the number of projects, as well as in quality and depth. All credit is due to the CEO Chris Seebregts and his team for their commitment and dedication to high standards of professional practice, and the contributions of our international donors and funders are sincerely appreciated.

The move to new and larger offices as well as the significant increase in the number of staff members, signals a shift in the organisational development of Jembi to a stage of expansion.

The range of projects currently in progress attests to the significance of the work of dependable and efficient information systems for health, from blood safety, birth and death registrations, maternal and child health, and AIDS and TB, to the inter-operability and infrastructure platforms that integrate and support information systems in four different African countries. Much of the work is highly technical but also highly contextual, requiring an in-depth understanding of the architecture of the health systems as well as the regulatory environment of the different countries. Matching the appropriate digital technology to the particular needs of health systems in sub-Saharan Africa is Jembi's particular strength, combined with the ability to translate these ideas into sustainable projects and programmes.

The new Technology Division is the engine-room of the organisation, while the Corporate Services division efficiently holds Jembi together as a whole, supporting the technical teams with financial and human resource services that are of the highest standards.

I am proud to chair the Board of such a professional and enthusiastic team of people engaged in such important work, and appreciate the support of my fellow Directors, who continue to provide skilled and strategic oversight of Jembi with much commitment. As we head into the next phase of Jembi in the new premises, I wish all involved every success in the year ahead.



Professor Steve Reid
Chairman of the Board

Letter from the Chief Executive Officer

It is a great pleasure for me to be able to report the continued growth and accomplishments of Jembi in delivering on its mission and vision in the 2016 to 2017 financial year. This was another notable year for Jembi adding a significant number of new projects and programmes to its established activities in Africa. This was paralleled by a projected increase in annual income to approximately R60 million over the period and an increase in the number of staff to around 100 personnel in four Africa countries: South Africa, Mozambique, Rwanda and Zambia. During this period, Jembi also opened a new company and office in Zambia and established a number of new collaborations, continuing to extend its network of local and international organisations.

The increase in staff and strategic alignment resulted in Jembi having to move its headquarters at the end of 2016. The three offices in Westlake Business Park had become too small for the increase in staff at the Cape Town headquarters. Jembi now has new offices in Tokai with more than double the combined space of the previous office, and now has all staff in location. The fully refurbished, open plan space creates an optimal working environment.

Jembi's Corporate Services Division continued to provide strong financial, legal, human resources and administrative support to the entire organisation, across all four countries, under the capable leadership of its Director, Mrs Jonnea Smith. Jembi received another unqualified audit report on its annual financial statements as well as clean audits on its US Government donor funding reports. This is testimony to the high standard of financial compliance and financial management in this division. The division also managed the move to Jembi's new offices, including the execution of contracts, refurbishing of the offices and the final move itself. This significant undertaking was executed perfectly, resulting in Jembi being able to move into its new offices on time at the end of November 2016, as planned, and in time for the end of year Board meeting and office

function. The division also managed all activities related to the opening of Jembi's new company in Zambia and appointment of staff, in accordance with Zambian law and procedures during this period.

A new Technology Division was introduced within Jembi during 2016. The division includes more than 30 software developers, analysts and product owners who were previously attached to individual programmes and are now included within one division under a Technology Director, Mr Pierre Dane. The division uses modern software engineering methods to develop high quality software and health information systems, consistent with international standards and is a major asset for Jembi in executing its vision and supporting the programme's function. The Technology Division is a core asset for Jembi and is expected to continue its growth trajectory in coming years.

Jembi's Programmes Division also experienced continued growth over this period, with Jembi receiving two new funding awards in South Africa. Jembi is a sub-contractor to the University of Cape Town (UCT) on the African Health Information exchange (AHIE) project, funded by the Bill and Melinda Gates Foundation, over three years. The partnership with UCT has also extended to international technical assistance in the area of HIV case-based surveillance, an international initiative to strengthen the use of data for controlling the global HIV epidemic. Jembi is also a subcontractor to the Health Information Systems Programme – South Africa (HISP-SA) on a new health information systems project, over five years. In this project, Jembi continues its support for the highly successful MomConnect project with the South African National Department of Health, among others. These new initiatives also complement Jembi's other main programmes managed in South Africa, including the Blood Safety Strengthening Programme and the Open Health Information Exchange programme. These are two highly successful projects within Jembi and complement a number of other programmes and projects, managed by the South Africa programmes

team. The new Jembi Zambia office was opened to support a new subcontract with CDC and BroadReach Healthcare in the re-engineering of the national electronic medical record application.

Through its local MOASIS office, Jembi continued to execute its two prime awards from CDC and USAID in Mozambique, supporting national systems for monitoring and evaluation. Jembi-MOASIS also negotiated MoU's with several entities in Mozambique, including Ministry of Health and its long-term partner, the national University of Eduardo Mondlane, in Maputo. Programme Director Dr Alessandro Campione opened up an exciting new collaboration with the Istituto Zooprofilattico Sperimentale dell'Abruzzo e del Molise Giuseppe Caporale (IZSAM) in Italy in the area of One Health and the eVet initiative, locally in Mozambique. In Rwanda, Jembi has continued to support its prime award with CDC working on several national health information systems projects as well as subcontracts with Management Sciences for Health. In addition, it has been working with the Rwanda Biomedical Centre in the development of HIV case-based surveillance for the country.

I am proud of Jembi's achievements over this period and believe that the organisation will continue this trend in future years despite challenges in international funding for development projects.



Prof Chris Seebregts
Chief Executive Officer

South Africa Programme

Supporting South Africa's Health Normative Standards Framework remains a key Jembi objective. During 2016/2017 Jembi:

- Continued work with the National Department of Health's (NDOH) MomConnect initiative. Jembi's OpenHIM interoperability layer processes up to 10,000 requests per hour
- Supported the new NDOH NurseConnect initiative, launched in November 2016 using the same technology as MomConnect for healthcare workers
- Developed a new electronic tool for Kheth'Impilo's Free State Advanced Clinical Care (ACC) Project

In 2017 Jembi began work on a new three-year Bill and Melinda Gates Foundation programme, managed by the University of Cape Town. The African Health Information Exchange (AHIE) initiative looks to improve the application of innovative technologies in the South African public health sector

The African Health Information Exchange (AHIE)

The AHIE is a reference implementation of the South African eHealth architecture funded through an award to the University of Cape Town by the Bill and Melinda Gates Foundation. It matures existing open source technologies while showcasing system feasibility. Partners include the University of Cape Town, National Health Laboratory Services, the Council for Scientific and Industrial Research, the National Department of Health and Jembi Health Systems. Work on the three-year grant began in January 2017.

Objectives

- **Mature openly available technologies** to harmonise person-level health data to function as a standards-based health information exchange and disease cascade reporting system
- **Implementation of a health information exchange** for clinical data suitable to the public health system in South Africa
- **Successful interoperability** implementations for key systems critical to the HIV

and TB response, including the national laboratory system

- **Cascade reporting** from diagnosis through to treatment success, assisting patient management at all levels of the health system
- **Scale-up of a national health identifier and patient registration system** by the National Department of Health
- **Reference implementations of the national health normative standards framework** for eHealth in South Africa
- A **Single Patient Viewer** application to give clinicians viewing access to consolidated longitudinal clinical data.

OpenHIM and OpenLHIM

An OpenHIM installation currently supports the Western Cape Provincial Department of Health data centre. As part of the AHIE grant, Jembi will build a local version of the OpenHIM, the OpenLHIM, to draw national-level electronic National Health



Laboratory System data into facility-based applications. Architecture of the OpenLHIM will ensure it has the capacity to address intermittent connectivity concerns and in line with interoperability principles speak to standards that are applicable across services.

Single Patient Viewer

The Single Patient Viewer is a unique provider-centred tool designed by the University of Cape Town and built by Jembi Health Systems. It is a web-based application for clinicians to view consolidated patient data. This innovative approach aims to provide much of the continuity-of-care functionality normally associated with electronic medical records. It combines available laboratory, pharmacy, discharge and clerical service information through a viewer with intelligent linkage and data processing around embedded clinical concepts.



Single Patient Viewer

The graphical mode of the SPV gives clinicians viewing access to consolidated longitudinal clinical data that allows them to track patient progress over time

Safe Surgery South Africa Project (ANSA)

Safe Surgery South Africa approached Jembi to build a data warehouse in order to assist with driving the coordination of perioperative research in South Africa. The requirement arose as a result of a research programme conducted by the South African Perioperative Research Group (SAPORG) to establish the national priorities for perioperative research and to drive the following outcomes:

- Collaborative research which will be used to address the clinical challenges encountered in perioperative care and outcomes, both in SA and globally
- Provide the capability to conduct national and international collaborative research in SA
- Collaborative research capability aimed at optimising the limited research resources in SA and globally
- Identification of urgent public health issues in perioperative medicine aimed at improving the health of the SA and/or global surgical populations

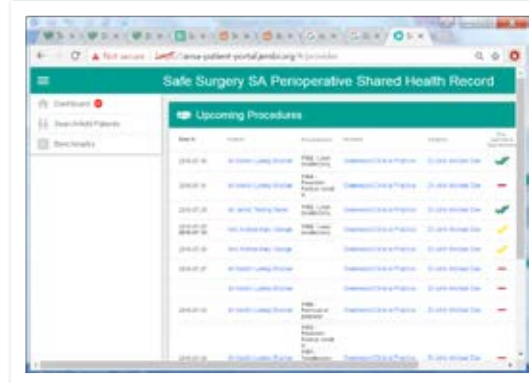
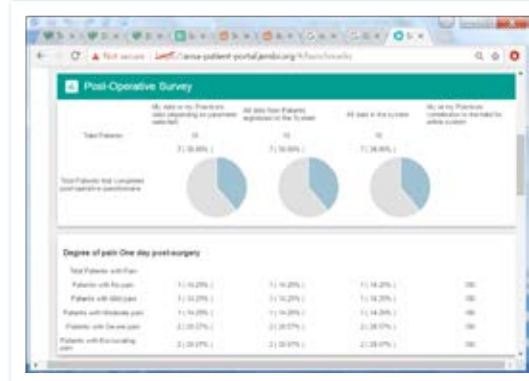
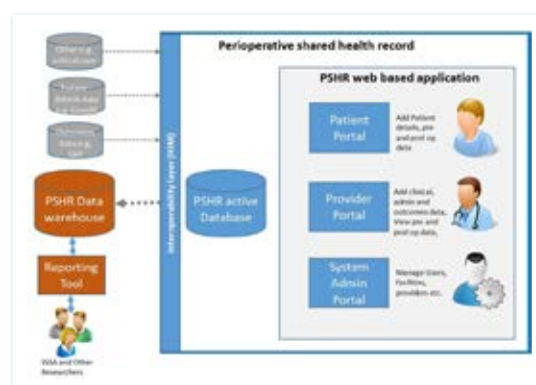
Achievements in 2016/2017

Jembi completed the following development:

- Patient registration
- Patient portal
 - documentation of pre-operative clinical information
 - documentation of post-operative patient survey
- Provider portal
 - documentation of intra-operative clinical outcomes
- Outcomes-based dashboards with secure access control
- Implemented the first instance of data modelling using the FHIR standard

(top to bottom) ANSA Architecture, Outcomes Baseline, and Provider Dashboard

Jembi is designing the ANSA system to support the establishment of national priorities for perioperative research and to drive collaboration between actors



Civil Registration and Vital Statistics (CRVS)



Attendees at the CRVS Workshop in Ghana

Plan International and Jembi are providing technical assistance to the Government of Ghana. This work entails identifying opportunities and limitations to strengthen the Civil Registration and Vital Statistics in the country at a national level through digitisation for the automation of the registration of vital events and generation of vital statistics. To this end, site visits were conducted to assess the CRVS landscape, including the business architecture, infrastructure, local technical capacity and available technologies. This was an opportunity to put to work the CRVS Digitisation guidebook, developed by Plan International and Jembi under the auspices of the Africa Programme for Accelerated Improvement of Civil Registration and Vital Statistics (APAI-CRVS). The guidebook is available online in three languages at www.crvs-dgb.org. Jembi recently presented the Portuguese version of the guidebook to the Interinstitutional Vital Statistics Working Group in Mozambique where it was well received and considered for use at the national level. Jembi is also working with Plan on OpenCRVS, a project to develop open source software for CRVS.

Kheth'Impilo Advanced Clinical Care Project (ACC)

Jembi continued to support Kheth'Impilo in strengthening the Free State Department of Health's capacity to treat patients presenting with complex cases of HIV infection, through its Advanced Clinical Care (ACC) Project. Jembi built a web-based dashboard functionality for the ACC Project, and training was provided to Kheth'Impilo and Free State Department of Health staff on using the new reporting tool. Reports were built to integrate ACC and available Department of Health HIV treatment data.

Achievements in 2016/2017

- Documentation of ACC related workflows
- Data mapping of HIV patient forms used at ACC sites
- Revision of the ACC Project referral forms
- Facilitated training on NHLS TrakCare for ACC clinicians
- Development of the ACC e-Register database
- Training on the ACC e-Register provided at ACC sites in the Free State
- Integrated Tier.Net and ACC e-Register reports

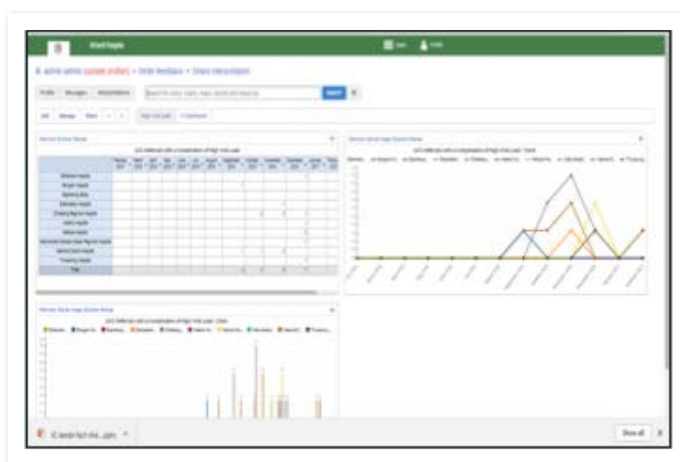
ACC e-Register

The ACC e-Register showcases the use of the DHIS2 platform as a means of capturing data and presenting results in an accessible dashboard format.

The ACC e-Register was built using DHIS2 to provide:

- Data capture through a custom-built app that reflects work in the ACC
- A dashboard for users to see data outcomes
- Analytics capacity

Utilising DHIS2 as the basis for the ACC e-Register ensures Kheth'Impilo has the future capacity to further populate the database by importing other data sets. It is implemented on the Kheth'Impilo central server, allowing access to any authorised user.



ACC eRegister dashboard

The landing page of the ACC application includes 'dashboards' (graphical and tabular summaries) of current data in the ACC application



KI training on ACC register

Healthcare workers at ACC sites in the Free State being trained on using the ACC application

Khupukani I - MomConnect



MomConnect is a cellphone-based health information initiative of the South African National Department of Health. It is offered to all pregnant women and women with children under the age of 12 months who access public healthcare facilities in South Africa. Over 1 million mothers have enrolled on MomConnect since its launch on 21 August 2014. 2016 saw the launch of NurseConnect, supporting primary healthcare facility nurses providing antenatal and post-natal care to pregnant and lactating women.

MomConnect activities in 2016/2017

2016/2017 saw the continued support of MomConnect by Jembi through the maintenance and expansion of the OpenHIM interoperability layer connecting the front end cellphone registrations to the back end National Department of Health database. At peak over 10,000 requests per hour are received through the OpenHIM. Information requests are sent to the National Department of Health Help Desk through the OpenHIM, with the in-built OpenHIM auditing tool tracking all services including opt-out requests.

Throughout the year Jembi participated on request in evaluation activities as well as in supporting National Department of Health approved projects using the MomConnect

infrastructure, such as trialling the provision of Prevention of Mother to Child Transmission of HIV infection information via SMS. Expansion of cellphone registration modes for MomConnect was included into the OpenHIM module. Throughout the year Jembi ensured that the OpenHIM was upgraded to meet new partner requirements and specifications.

NurseConnect

NurseConnect is a new parallel cellphone-based service provided by the National Department of Health through the MomConnect consortium to nurses supporting antenatal and postnatal care in public healthcare facilities. The South African Minister of Health, Dr Aaron Motsoledi officially launched the service on 17 November 2016.

Change to Khupukani II

PEPFAR funding for MomConnect through the Khupukani I grant administered by CDC South Africa officially ended in December 2016. Funding for the service is continuing under Khupukani II for another five years.

The in-built OpenHIM auditing tool tracks all MomConnect services including opt-out requests.

(L) NurseConnect Launch

The service was launched by the South African Minister of Health on 17 November 2016

(R) Jembi presenting at SIFSA 2016



mothers2mothers (m2m)

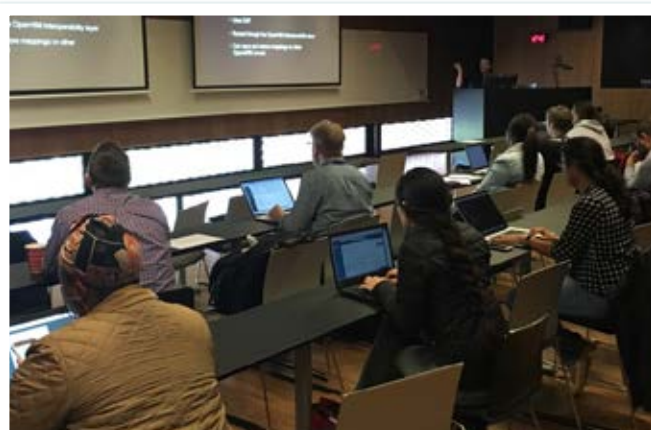
mothers2mothers (m2m) works with mothers in nine countries to provide peer mentoring and support to other mothers affected by HIV and AIDS. Jembi Health Systems was first contracted by m2m to assess their electronic data management systems and make recommendations on moving to a new system that could be extended and expanded by m2m when necessary. Jembi was then engaged to build the new aggregate data platform and to assist with implementation of the new system. Ongoing training of m2m staff was provided by Jembi as part of the capacity building aspect of the project. The project ended in January 2017.

Achievements in 2016/2017

Existing m2m databases were identified together with m2m staff, then migrated over to the new aggregate data platform. This included the development of supporting documentation to ensure m2m had the in-house capacity to repeat such activities as required in future. Further training of m2m staff was provided as identified through these exercises. The design of the new system on a DHIS2 platform was to ensure the potential expansion of the system as required and relevant training of m2m staff on how to build new modules within the data platform provided. A process of mapping and migrating eight years of legacy data, made up of many millions of data points, into the new system was completed. In addition, m2m staff have been trained by Jembi on the use of the GIS mapping functionality of DHIS2, and the creation of Tracker Programmes to track training programmes and other events.

(L) Pierre Dane presenting at the DHIS Experts Academy, Oslo, Norway

(R) A view of the high-level OpenHIE Architecture for national health information exchange solutions



Open Health Information Exchange (OpenHIE)

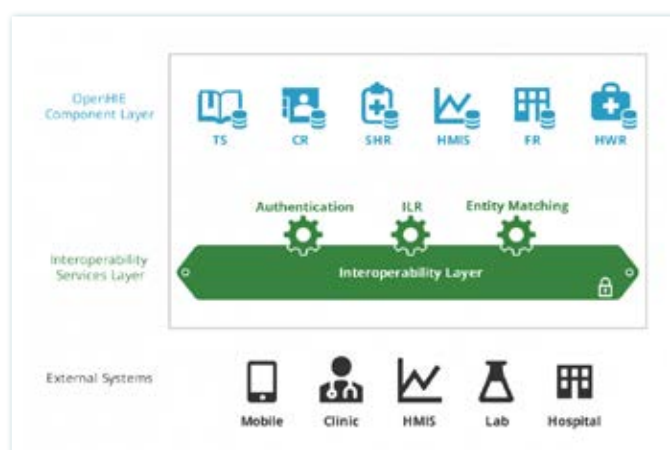
Jembi is one of the founders and leaders of the Open Health Information Exchange (OpenHIE) (www.ohie.org) international community. Jembi is responsible for the interoperability layer and shared health record communities as well as being a leader of the OpenHIE Implementers Network (OHIN).

Over the past year Jembi's primary areas of work have included working under the banner of **Leadership and Advocacy** where Jembi continues to engage and lead in the leadership and architecture communities of OpenHIE. Jembi also continues to work around the broader **Community and Reference Tool Curation** where Jembi curates the interoperability layer (IOL) and shared health record (SHR) communities as well as maintains the reference tools for each community; the OpenHIM (www.openhim.org) for the IOL component and the OpenSHR and HEARTH for the SHR. Jembi has started working with the **DevOps Community** where we work with the OpenHIE team to enhance the packaging and showcasing of the OpenHIE architecture in action. We also work with the international teams in providing **DATIM Support** to the DATIM development project that utilises Jembi's OpenHIM tool.

A large focus of the past year has been around beginning the OpenHIE Implementers Network. Jembi is a leader in the emerging OpenHIE Implementers Network that is supporting new groups interested in leveraging OpenHIE and its patterns to solve health problems in low resource settings.

Achievements in 2016/2017

- Jembi leads in the launch of the OpenHIE Implementers Network
- Multiple releases of the OpenHIM software within the year
- Pierre Dane presenting at the DHIS2 academy in August 2016
- Carl Fourie presenting as part of a panel at the mHealth Summit in December



Digital Health Programmes (AKA - The "Skunkworx")

This new division of Jembi Health Systems is primarily aimed at the application of new and emerging technologies towards solving real world health requirements. In other words, it researches and trials the emerging leading edge technologies, such as Wearables, Mobile, Near Field Communications (NFC), Radio Frequency Identification (RFID), Broadband Communications, Blockchain Technology, and Cloud storage with a view to using these in Health Programmes for Jembi clients. Some examples of recent applications from the "Skunkworx" are given below.

The Digital Health Programmes (DHP) Division operates on the basis that no requirement is "too weird" to consider and no need is "too crazy". It uses a "no-limits" approach to address a broad health programme scope.

Recently, the DHP Division has been expanding Jembi Health Systems' reach into the private sector with a number of Public Private Partnership projects addressed at those in that sector who require health interventions.

bracelets provided identification, basic medical history and login access to a full cloud-based PHR via any smartphone.

- **Improving the health contact with patients under chronic care** – The application of wearable technology via cloud-based health records allowed ongoing monitoring of the patient's current risk status and allowed for quick intervention to support patients in need.
- **Improving the patient flow in clinics** – The application of short range RFID tracking allows for the rapid scheduling, consultation and replenishing of patients from the reception to the pharmacy throughout their interactions with the healthcare facility.
- **High capacity throughput systems** – The application of document-based technology to improving the stability and scalability of Electronic Health record and Personal Health record systems as well as opening up strong inter-operability capability in these systems.

No requirement is "too weird" to consider and no need is "too crazy". Jembi's Digital Health Programmes Division uses a "no-limits" approach to address a broad health programme scope.

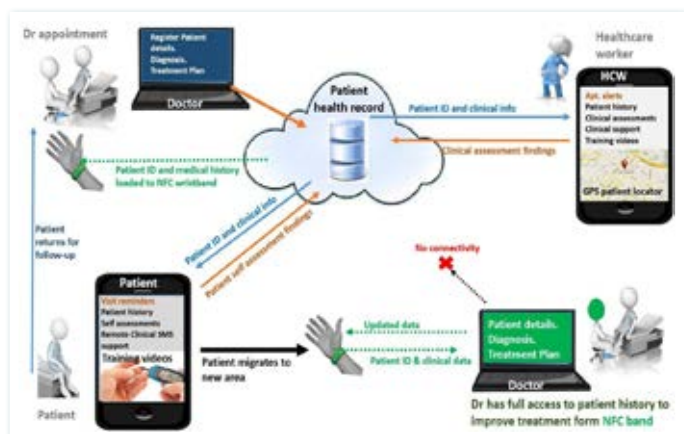
Digital Health Programmes 2016/2017

- **Tracking patients in a cross-border migratory population** – The need here was to provide a mechanism to allow health providers to maintain contact with, and provide therapy to, patients who were migratory, either through refugee status or other displacement reasons. NFC chips embedded in silicon

(L) This process flow shows the ease with which patient information can be shared with all relevant healthcare providers allowing for a vastly improved clinic/patient interaction and an improved patient experience

Jembi Digital Health Initiatives

(R) Some of the many ways that Near Field Communication devices can be worn or used. The key rings, armbands and pendants all contain NFC embedded chips. The cellphone is able to read any of the devices at a range of between 1 and approximately 10 cm



Blood Safety Strengthening Programme

Jembi's Blood Safety Strengthening Programme (BSSP) centres around the development of a world-first production-ready open source Blood Safety Information System (BSIS). BSIS is designed as a fit-for-purpose information management system for use in resource-constrained blood services and is used to track and report information across the core business areas of a blood service, from the point of donor registration through to the point of transfusion, thereby supporting vein-to-vein traceability of donations. Our implementation strategy is based on industry standards and is designed to build capacity and sustainability into the blood services as they implement, use and maintain the software.

Blood Safety Strengthening Programme (BSSP)

The Blood Safety Strengthening Programme is a Centers for Disease Control and Prevention (CDC) funded programme looking to develop and implement an open source information management system to manage information about blood donors and donations in low resource settings.

At its core the BSSP works towards the objectives of:

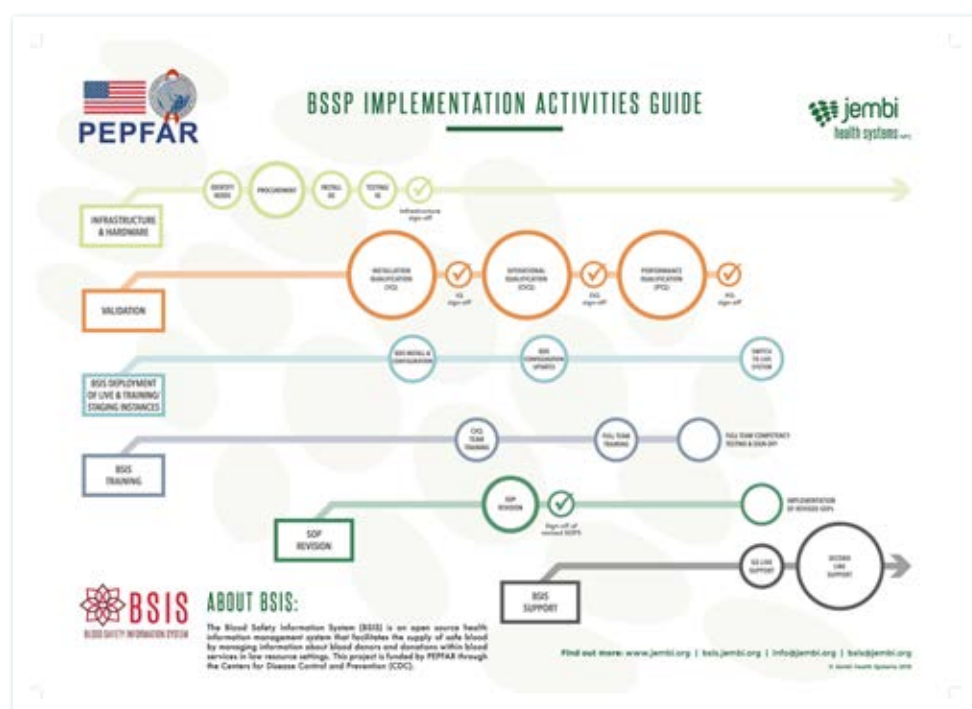
- Developing a fit-for-purpose open source blood management information system for low resource setting blood services known as the Blood Safety Information System (BSIS)

- Implementing the BSIS software in a sustainable way through building capacity in system use, management and maintenance in low resource settings through our implementation programme
- Investigating a sustainable cost recovery model for an open source software to reduce donor reliance in the long term

The BSSP is currently comprised of six distinct but interlinked projects. Each project has made significant progress over the 2016/2017 Financial Year and these are independently presented below. However, core achievements of the BSSP over this period include:

- **[May-16]** BSIS software launched at Africa Society for Blood Transfusion (AfsBT) Congress Kigali-Rwanda
- **[Sept-16]** Official release of BSIS v1.0
- **[Oct-16]** BSIS v1.0 operating live at Lesotho Blood Transfusion Service
- **[Jan-17]** First BSIS Implementers Academy hosted at Jembi Health Systems Head Office, Cape Town
- **[Mar-17]** BSIS v1.0 operating live at Southern Area Blood Centre, Accra, Ghana

In addition to the programme and project outcomes we've seen the BSSP support the creation of Jembi's implementation team and the on-boarding of new implementers to support the implementations.



BSSP Implementation Activities Guide

An illustration of the steps and work areas the BSSP implementation moves through to successfully implement BSIS in a blood service

BSIS Product Development Project



Blood Safety Information System (BSIS) is an open source software application designed as a fit-for-purpose information management system for use in resource-constrained blood services. The system is used to track and report information across the core business areas of a blood service, from the point of donor registration through to the point of transfusion, thereby supporting vein-to-vein traceability of donations. Key functions supported by BSIS include donor and donation management, donor counselling, transfusion transmissible infections (TTI) and blood grouping testing, component processing and labelling, inventory management and distribution.

BSIS follows Africa Society of Blood Transfusion (AfSBT) good practices and supports its aims by facilitating the:

- Standardisation of the labelling of safe components, with automated blocking of unsafe

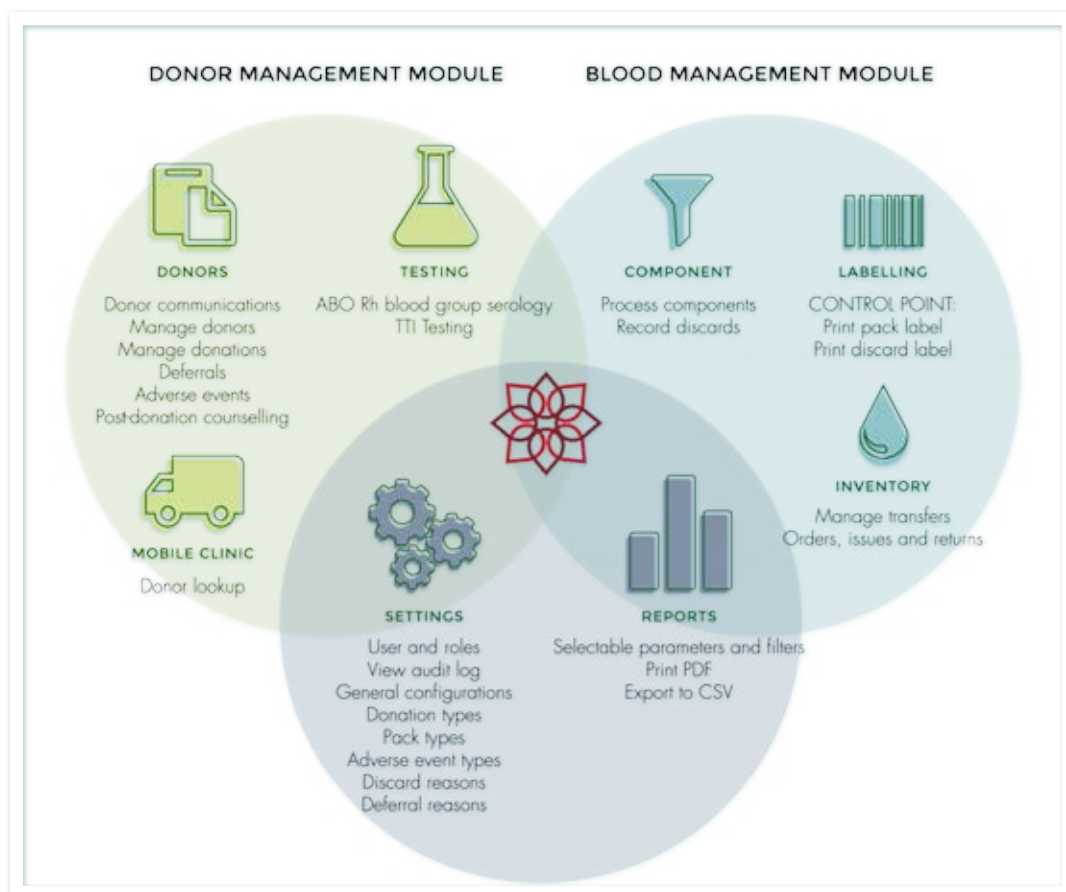
donors and donations

- Improvement of the recruitment and retention of repeat Voluntary Non-Remunerated Blood Donors (VNRBD) and the conversion of Family Replacement Donors (FRD) to repeat VNRBDs
- Easier identification and follow-up of TTI positive donors in order to refer them to further testing, care and treatment

Over the past year this project has seen the following key milestones in the development of BSIS:

- **[Sept-16]** Release of BSIS v1.0
- **[Jan-17]** Release of BSIS v1.1
- **[Mar-17]** Release of BSIS v1.2

Our software team is constantly advancing the features that are being requested by countries and that exist on our product roadmap. The BSIS Product team follows the good practices set forth in the Technical Division and is pioneering the Quality Assurance team's role within Jembi.



Donor and blood management Venn diagram

A high-level overview of the functionality found in the core modules of the BSIS software

Lesotho Blood Transfusion Service BSIS Implementation Project

Lesotho Blood Transfusion Service (LBTS) is the Ministry of Health department committed to providing Lesotho's hospitals with safe, effective and adequate blood and blood products. This is done in accordance with national and international standards, meeting patient needs in a cost-effective manner.

In April 2016 the LBTS was the first to go live at a national level with the Beta BSIS Donor Management Module. This was the first step in the process of implementing the full BSIS v1.0 solution for tracking of blood donations from collection, through testing and component processing, to release for use at health facilities, which went live at LBTS in October 2016.

Milestones in 2016/2017 Financial Year:

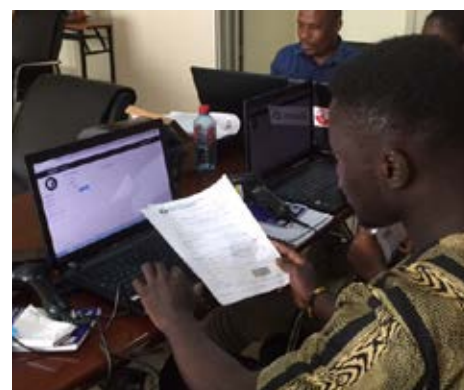
- **[Apr-16]** LBTS go live with Beta BSIS Donor Management Module
- **[Sep-16]** Deployment of BSIS v1.0 and Operational Qualification (OQ) team training
- **[Sep-16]** Operational Qualification (OQ) of BSIS v1.0
- **[Sep-16]** Full team training
- **[Oct-16]** Performance Qualification (PQ) of BSIS v1.0
- **[Oct-16]** BSIS v1.0 went live at LBTS headquarters in Maseru, Lesotho
- **[Jan-17]** Lesotho Ministry of Health staff supporting LBTS attend BSIS Implementers Academy

"Our relationship with Jembi is very good, they are very supportive and we all get along very well. We have also learnt a lot from them from being a pilot and we are very grateful."

- LBTS Manager working with Jembi on BSIS implementation

BSIS Training

(L) The Lesotho Blood Transfusion Service celebrating their final training and certificates as they go live (R) Ghana Blood Service staff undergoing hands-on training of BSIS as part of the implementation process



National Blood Service Ghana BSIS Implementation Project

The National Blood Service Ghana (NBSG) is a Ministry of Health institution dedicated to providing safe blood from volunteer donors. The Southern Area Blood Centre (SABC) in Accra, where BSIS is currently being implemented, provides blood products to health facilities in the southern part of Ghana.

Jembi's initial engagements with NBSG's SABC began in June 2016. Since then the Jembi team has made several trips to Ghana to work with the SABC on the implementation of BSIS. Following a full three-step system validation the BSIS system went live in March 2017. The primary challenge

with the implementation to date has been the procurement of hardware and consumables within Ghana. Forward planning will be required to ensure that consumables are available and the supply chain is in place.

Key activities and outputs for the 2016/2017 financial year include:

- **[Jul-16]** Initial country scoping visit
- **[Oct-16]** Deployment of BSIS v1.0 and Operational Qualification (OQ) team training
- **[Oct-16]** OQ of BSIS v1.0
- **[Nov-16]** Full team training

- **[Jan-17]** Performance Qualification (PQ) of BSIS v1.0
- **[Jan-17]** Two staff from Ghana attend BSIS Implementers Academy
- **[Mar-17]** BSIS v1.0 live at SABC

Jembi continues to work with the NBSG to support the implementation and ongoing activities. Jembi's implementation team is scheduled to support the official launch of BSIS in Ghana.

National Blood Bank Service of Ethiopia BSIS Implementation Project



ENBSS

Jembi team and the Ethiopian National Blood Service team returning from a field visit

"I believe Jembi and BSIS came at the right time for our blood service. The rapid growth in blood collection and testing and the effort towards realising a fully accredited system is difficult without the availability of a reliable information system. And we have seen BSIS is the right solution for ensuring blood safety. Since we started this project, working with Jembi has been a great experience. We have learned a lot during the implementation of BSIS from the adept and dedicated staff of Jembi. Their commitment to share their expertise and addressing our concerns has been outstanding. We feel confident we will have a successful go live and look forward for the use of BSIS in all our blood services."

- Abiy Belay, NBBSE, Ethiopia

The mission of the National Blood Bank Service of Ethiopia (NBBSE) is to ensure the safe and adequate supply of blood and blood products to all transfusing health facilities in Ethiopia. The National Blood Bank Services Office is a non-profit governmental organisation whose core functions include community mobilisation and education on voluntary blood donation; blood collection, laboratory processing, testing and production of blood; distribution to health facilities; promotion of appropriate clinical uses of blood; research; and capacity building within blood transfusion services. The NBBSE was established by the Ethiopian Red Cross in 1996, and transferred to Ethiopia's Federal Ministry of Health in 2004. Its main centre, where Jembi is implementing BSIS, is located in Addis Ababa.

BSIS will be replacing two separate home-grown electronic systems currently being used by NBBSE with a better quality and more sustainable integrated donor and donation management system. Thus far the implementation has been running well and NBBSE has done a large amount of work in changing their physical workflows and SOPs to complement the BSIS system. NBBSE have however been experiencing difficulties

in purchasing required hardware and consumables locally and Jembi is working with the NBBSE team to address these issues.

Over the past year the Jembi team have carried out and seen the following:

- **[Aug-16]** Initial country scoping visit
- **[Dec-16]** Deployment of BSIS v1.0 and OQ team training
- **[Jan-17]** OQ of BSIS v1.0
- **[Jan-17]** Two staff attend BSIS Implementers Academy
- **[Feb-17]** Full team training

The Jembi implementation team is scheduled to complete the implementation of BSIS and support the official launch events in 2017.

Ethiopia

Jembi implementer guiding Ethiopian Blood Service Staff through key aspects of the BSIS training



Zambia National Blood Transfusion Service BSIS Implementation Project

Zambia National Blood Transfusion Service (ZN BTS) is in charge of restoring lives through safe blood transfusion, within Zambia. The Lusaka Centre, where BSIS is currently being implemented, is the head office of the ZN BTS. Unlike in many of the countries in which Jembi is implementing BSIS, ZN BTS had an existing electronic donor record management system which had been used within the service for a number of years. However, ZN BTS took the decision to change systems to BSIS because it provided a full donor and donation information management system. This full end-to-end solution is required for African Society for Blood Transfusion (AfsBT) accreditation.

Over the past year Jembi has worked with the ZN BTS and team to achieve the following:

- **[Jul-16]** Initial country scoping visit
- **[Nov-16]** Deployment of BSIS v1.0 and OQ team training
- **[Jan-17]** OQ of BSIS v1.0
- **[Feb-17]** Full team training
- **[Jan-17]** Two staff attend BSIS Implementers Academy
- **[Mar-17]** PQ of BSIS v1.0

Thus far the implementation of BSIS in ZN BTS Lusaka has been going very well and ZN BTS are keen to expand the implementation of the system to other donation, lab and component processing sites in Zambia. At present Jembi and ZN BTS are exploring the possibility of implementing BSIS in a second site in Kitwe, Zambia. Jembi will continue its discussion with ZN BTS to support the official launch of BSIS in Zambia and to discuss opportunities to expand to more sites.



BSIS Implementers Academy Project

In January 2017 Jembi hosted the first ever BSIS Implementers Academy Workshop. This workshop made use of Jembi's training and workshop spaces in the new office space and gave Jembi the opportunity to "field test" its services.

The workshop brought together nine participants from four African countries where the national blood services are implementing BSIS (Lesotho, Ghana, Zambia and Ethiopia). The delegates brought with them a range of skills and expectations to be met and built upon by the Jembi implementation team.

The aim for the BSIS Implementers Academy Workshop was to build local capacity within the countries to better support and maintain BSIS and to grow the implementation internally to more sites in country.

The workshop followed a structured two-week agenda that covered basic installation and hardware requirements for BSIS, the technical aspects of BSIS deployment, Operational and Performance Qualification processes and provided the attendees with user training on the new BSIS v1.2.

BSIS Implementation
(Top) Zambia and Lesotho sharing insights at BSIS Implementers Academy. (Bottom) Zambia staff undergoing BSIS user training during implementation

The Academy also introduced basic project management and training skills, including some budgeting guidelines. These skills are designed to run hand-in-hand with the onsite training and support given to participants during Jembi's in-country BSIS implementations.

The workshop was well received and participants left feeling ready to take on the responsibility of providing first line support and system maintenance in their home countries.

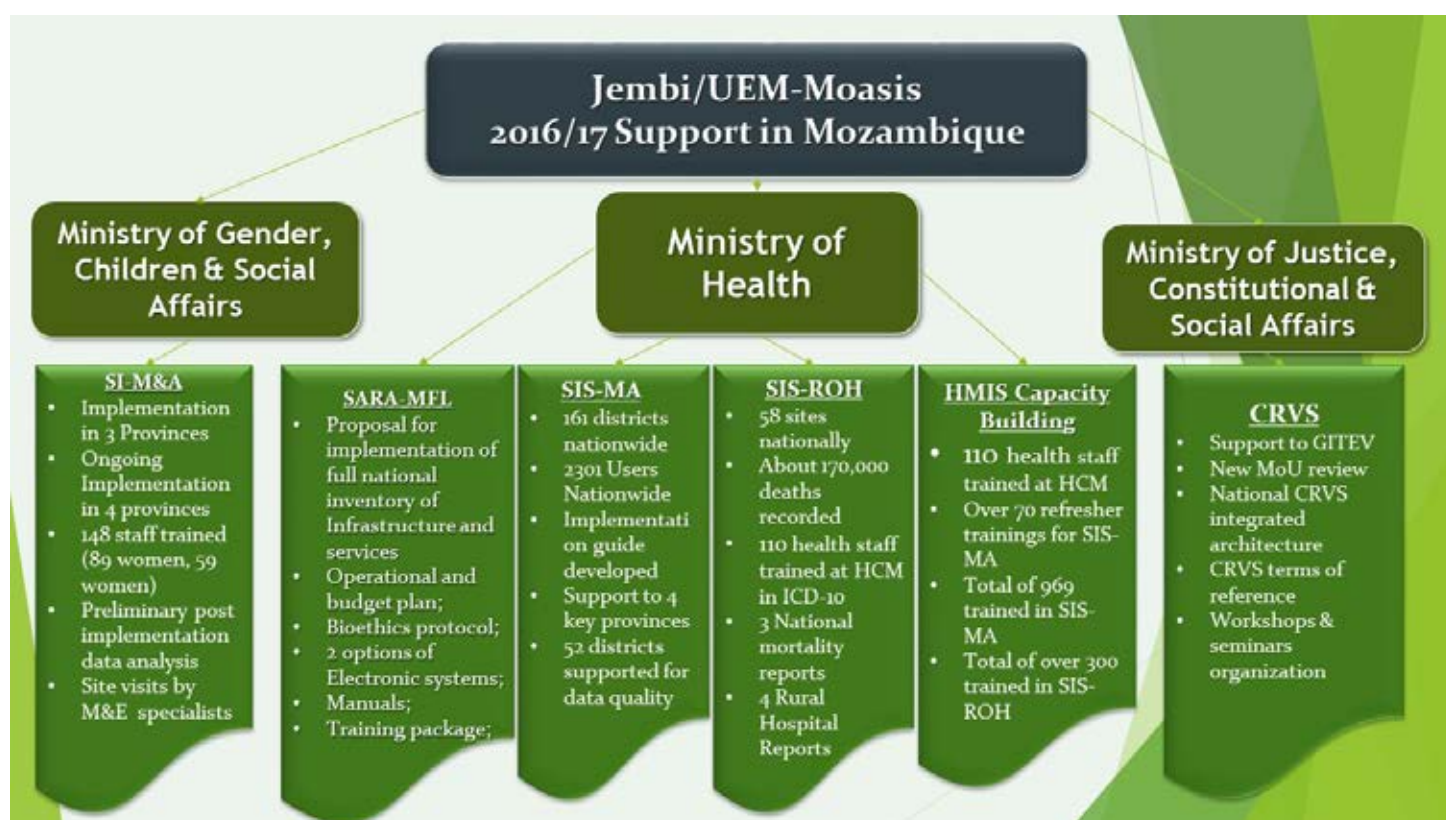


BSIS Implementers Academy
Graduates of the first BSIS Implementers Academy headed back to their countries to apply the learnings of the academy, including how to plan and undertake a safe implementation of BSIS

Mozambique Programme

Throughout the year 2016-2017, the Jembi/UEM-Moasis team has been involved in planning, training, development, system installation, maintenance and institutional support-related activities with the Ministry of Health (MoH), the Ministry of Justice, Constitutional and Religious Affairs (MinJus) and the Ministry of Gender, Children and Social Affairs (MGCAS) of Mozambique with financial support from PEPFAR-CDC and USAID respectively. In the post-implementation phase, Jembi/UEM-Moasis has largely focused its advisory and technical assistance to the MoH and MGCAS at the national, provincial and district levels in data quality through constant follow-up M&E visits for data audits and refresher trainings to ensure knowledge retention, constant system use, data collection, analysis and use for all projects, including SIS-MA, SIS-ROH, SARA-MFL, HMIS capacity building and SI-M&A.

As a result, the abovementioned ministries and other national institutions have been able to produce national, provincial and hospital statistical reports; discuss data at high-level meetings including the Consultative Council of the MoH, other provincial and district-level management meetings; provide reliable information to Mozambique's Economic and Social Plan (PES); national mortality statistics reports; mortality statistics reports produced every semester independently by the Cuamba Rural Hospital after intensive training supported by the Jembi/UEM-Moasis team; and preliminary statistical reports for the field of gender, children and social affairs. The following diagram summarises the main activities the Jembi/UEM-Moasis team has accomplished throughout the year in some of our flagship projects.



SARA-MFL PROJECT (national Inventory of Infrastructure, Master Facility List and service availability survey)

The team assisted the MoH in the planning stage of the project, the development of conceptual documentation, and the development of the system. The following activities and products were accomplished throughout 2016/2017:

- Concept note to the MoH for the implementation of the full national inventory of Infrastructure and services under the SARA-MFL project
- Review of conceptual and methodological document, governance and project team structure
- Operational plan, budget and deliverables submitted to the MoH and approved
- Definition of the architecture and control panel of the electronic system for census and assessment
- The main protocol document for the census data entry with variables and indicators to be captured;
- The alpha version of the electronic tool adjusted to the SARA survey questions to be used for data collection
- SARA and MFL questionnaires, protocols (bioethics), manuals, standards and a dedicated website for the project.

SIS-MA (National M&E System for the Health Sector)



With technical support from the Jembi team, the national M&E system was developed and implemented in 161 districts in Mozambique, with 2,301 users nationwide. Jembi/UEM-Moasis contributed to the training of 969 staff of the national health system in Mozambique since the inception of the project. This year, the team developed an internal standard Implementation and M&E Guide applicable for all information system projects, as well as a standardised M&E template. This helped our M&E specialists and implementers assess the extent to which the system is being used and data is being collected, properly analysed and used at provincial and district levels through follow-up visits and refresher trainings in the four southern provinces of Mozambique where the team is providing direct support. The new M&E tools developed have allowed for the generation of routine statistics, which have culminated in periodic reports demonstrating trends in system use, data collection, use of forms and reporting of cases, as well as technical issues to be solved by our staff working at the MoH at central level and based in the provinces. Jembi/UEM-Moasis technicians attended the DHIS2 Tracker Academy in Shimla, India as well as the DHIS2 Level 1 Academy in Maputo, Mozambique organised by the University of Oslo in collaboration with the University Eduardo Mondlane where they completed the course and supported newcomers at the Level 1 Academy.



Case Study:

Development of Implementation and M&E Tool

Cognisant of the need to standardise implementation and M&E processes in the field, Jembi/UEM-Moasis implementers, statisticians, managers and M&E specialists worked together in the development of the Implementation and M&E Guide as a tool with a list of actions to undertake to effectively carry out these processes. The guide was finalised and tested in the field during follow-up M&E visits. As a result, the 2016 SIS-ROH and 2016 SISMA M&E reports were produced and are now available upon request for consultation. These reports allow interested parties to understand the impact of system installation in the provinces as well as the presence of IT technicians by highlighting strategic data on the information systems, their statistics and reporting rates.

DHIS2 Training

(Top) Jembi Mozambique Lead Developer João Machiana at the DHIS2 Tracker Academy in Shimla, India (Bottom) Jembi Mozambique developer Paulo Matsinhe receiving DHIS2 Tracker Academy certificate in Shimla, India

Case Study:

The Cuamba Success Story Prevails

The Rural Hospital of Cuamba continues to be the only hospital of its stature to publish mortality data analysis reports independently using data collected routinely from SIS-ROH. There have been four reports produced to date. Such examples demonstrate the possibilities that arise when implementation processes have training sessions and post-implementation refresher trainings with an emphasis on sustainability. This allows the system users to gradually develop a sense of ownership over the system.

Mortality data analysis report

The National Mortality Registration System shows reports such as the cumulative number of deaths registered in the last 10 years

SI-M&A (National M&E system for the Ministry of Gender, Children & Social Affairs - MGCAS)

During 2016/2017, the national M&E system for the MGCAS was implemented in Maputo Province, Maputo City and Gaza province. As a result of the implementation of the system and training to 148 staff, 89 women and 59 men, the social units and social service offices at the district level have been generating preliminary data analyses. In addition to the implementation, our M&E specialists and statisticians have been visiting the sites providing refresher trainings to ensure data entry and proper analysis to ensure data quality. The system is in the process of being implemented in four additional provinces: Niassa, Zambezia, Nampula and Manica.



SI-M&A Training

Staff from Social Units and Social District Services being trained on the use of the SI-M&A in Namaacha District

SIS-ROH (National Mortality Registration System)

The National Mortality Registration System developed and implemented nationally in 58 sites by Jembi/UEM-Moasis has been fully updated to its new version in all sites and continues to provide routine mortality data. To date, approximately 170,000 deaths have been registered on the system as opposed to 100,000 last year. As a result of the training supported by Jembi/UEM-Moasis on system use, data analysis and interpretation as well as ICD-10 codes, three national mortality data analysis reports and four mortality data

analysis reports from the Rural Hospital of Cuamba were produced. The data is often discussed by hospital management and is used to inform strategic planning for the health sector. At the Central Hospital of Maputo, 101 health professionals received certificates of completion of the course on Certification of Causes of Death, International Classification of Diseases and Problems Related to Health - ICD-10, and Codification in Morbidity and Mortality organised with the technical support of Jembi/UEM-Moasis.



Civil Registration and Vital Statistics

The Jembi/UEM-Moasis team continues to support CRVS strengthening activities, providing technical and advisory assistance to the Ministry of Justice, Constitution and Religious Affairs as well as through the inter-institutional Vital Statistics Working Group, GITEV. Our interventions in the field of CRVS in Mozambique promote an integrated national CRVS architecture. This year they have included: presenting the Portuguese version of the CRVS Digitisation Guidebook; drafting the terms of reference for an integrated national CRVS system; supporting the organisation of national workshops and seminars to define a joint roadmap, MoU and an inclusive national CRVS system including national and international institutional stakeholders and partners.

The Rural Hospital of Cuamba continues to be the only hospital of its stature to publish mortality data analysis reports independently using data collected routinely from SIS-ROH. There have been four reports produced to date. Such examples demonstrate the possibilities that arise when implementation processes have training sessions and post-implementation refresher trainings with an emphasis on sustainability. This allows the system users to gradually develop a sense of ownership over the system.

CRVS Revitalisation Seminar

(Top) The National CRVS Revitalisation Seminar organised with support from Jembi/UEM-Moasis
(Bottom) Dr Alessandro Campione's opening remarks at the National CRVS Revitalisation Seminar



Case Study:

CRVS Digitisation Guidebook available in Portuguese

The Civil Registration and Vital Statistics (CRVS) Digitisation Guidebook has been translated into Portuguese to ensure that more countries and interested parties in the Lusophone world have access to the step-by-step online tool. The guide was developed to provide guidance for countries to plan, analyse, design and implement digitised systems and automated processes for CRVS. It was presented to the

GITEV in Mozambique and was well received by the group. This 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 in collaboration with UNICEF.

Case Study:

HMIS Capacity Building

A total of 101 medical doctors and administrative staff were trained and received certificates in ICD-10 at the Central Hospital of Maputo. The training aimed at strengthening the capacity of the highest clinical level of the country in HMIS field in general, morbidity and mortality data, certifying, analysing and interpreting mortality data retrieved from SIS-ROH or other MoH systems. In addition, 63 health technicians and doctors were trained during the SIS-ROH expansion to five sites in the Sofala province.



ICDN-10 Training

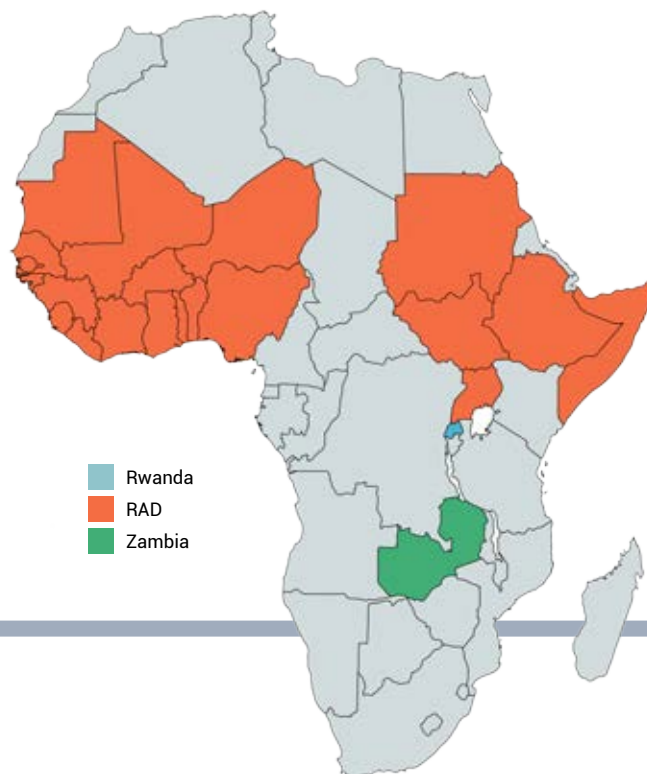
(Top L) Handing of certificates at HCM ICD-10 training closing ceremony (Top R) ICD-10 Training Certificate (Bottom) Jembi/UEM-Moasis Programme Coordinator Mr António Sitoi & Principal Investigator Prof. José Leopoldo Nhampossa at the HCM ICD-10 training closing ceremony

Regional Programme

The Jembi Regional Programme (JRP) currently consists of three programmes on the African continent supporting a number of strategic national and regional initiatives. These three programmes are:

- The Rwanda Programme
- The Regional Action through Data (RAD) Programme
- The Zambia Programme

Jembi is supporting a wide range of activities across the regional programme working with many international and local partners and funders including CDC and USAID. We are excited to be growing our footprint in Africa.



Rwanda Programme

Jembi's Rwanda Programme supports a number of strategic projects funded by CDC and USAID. We work closely with the Ministry of Health (MoH), Rwanda Biomedical Centre (RBC), Rwanda Social Security Board (RSSB) and the University of Rwanda, School of Public Health (SPH) on a range of projects from supporting the eHealth Strategic Planning to Solution Architecting and Development.

Jembi has been awarded a sub-contract by MSH under the Rwandan Health Systems Strengthening Activity (RHSSA) project. Building on the first two years of this project, we have been engaging with RSSB to provide technical assistance to strategic projects including improving the Mutuelle

Membership Management System (3MS) and Claims Management System as well as supporting the MoH on projects. These include, but are not limited to, developing Business Processes and User Requirements for the MoH National EMR System. We have also contributed to the National 2020 eHealth Strategic Plan, developed the MoH Health Facility Accreditation Application and Integration with DHIS2, as well as provided technical support on an integration Solution for Rwanda's National Data Warehouse built on DHIS2.

In December the Jembi team attended and participated in the Annual OpenMRS Implementers meeting in Uganda to discuss the latest developments and features in

the OpenMRS community and platform. During this conference, our team had the opportunity to go on a site visit to one of the larger clinics in the heart of Kampala to observe the conditions in which OpenMRS is currently being used in Uganda. We also presented the Server Monitoring Tool developed for Rwanda under the Rwandan School of Public Health Implementation Science Project.

In the first quarter of 2017 our team continued development of the MoH Health Facility Accreditation Solution and conducted user acceptance testing reviews with the MSH Rwanda team.

RAD Programme

Jembi has partnered with BroadReach Healthcare (Prime Awardee) as part of a consortium with Duke University, the Intergovernmental Authority on Development (IGAD) and the West African Health Organisation (WAHO) in response to the Regional Action through Data (RAD) Project funded by the USAID Africa Bureau for Sustainable Development.

There are two primary focus areas for RAD:

- **Regional Level:** To equip and empower stakeholders to make data-based healthcare delivery decisions, through aligned and harmonised data collection systems that will be used by regional and national partners for evidence-based decision-making
- **Patient-Provider Level:** To improve health outcomes for all individuals, implementing a cloud-based personal electronic health record system to integrate cross-border data collection and ensure continuity of care regardless of geographic location

The purpose of our initiative is to improve health outcomes by disrupting current models of healthcare, by changing how and why data/information is collected, analysed and used to achieve results.

This project started in Q4 of 2016 and the Jembi team met IGAD in November 2016 for an initial assessment of this five-year project. In January 2017 the Jembi RAD team visited the WAHO headquarters in Bobo-Dioulasso, Burkina Faso to conduct a situation analysis. Field visits for a rapid assessment were scheduled for the WAHO region in February 2017, however these were delayed.

The RAD project is one example of a system that takes the approach of bridging multiple new and existing, yet separate systems for cross-border populations. We aim to work with partners in East and West Africa to develop a cloud-based personal electronic health record and identification system that can be accessed at a regional level, including innovative approaches to personal identification.



IGAD Planning Meeting

Senior Programme Manager Wayne Naidoo along with BroadReach team attending the first RAD IGAD Planning Meeting in Djibouti

Zambian Programme

The Integrated Decision and Analytics Support (IDeAS) Project Consortium supports the Ministry of Health (MoH) in improving integration and interoperability of data from multiple systems, including but not limited to:

- Zambian HIS
- Drug and Logistics Management Information System
- Human Resources Information System
- Financial and Administrative Information Systems
- Vital Registration Records

This is done through providing technical assistance at the national and provincial levels for integrated delivery of HIV/AIDS and TB treatment services.

Jembi's focus for Year 1 of this five-year project is to develop a re-engineered Smart-Care (EHR) Platform, working with all stakeholders to prepare the platform for implementation readiness.

The sub-agreement with BroadReach Healthcare was signed in December 2016 and in January and February 2017, our programmes, technical, business analyst and health information systems specialist teams travelled to Zambia to engage with all key stakeholders including the consortium partners (BroadReach, CIDRZ, IHM Africa and Lusaka Studio Systems) as well as with the Ministry of Health and CDC to kick-start the project.



The Jembi team (Wayne Naidoo and Lisa George) after a successful stakeholder workshop in Zambia to prioritise the Smart-Care re-engineering development roadmap

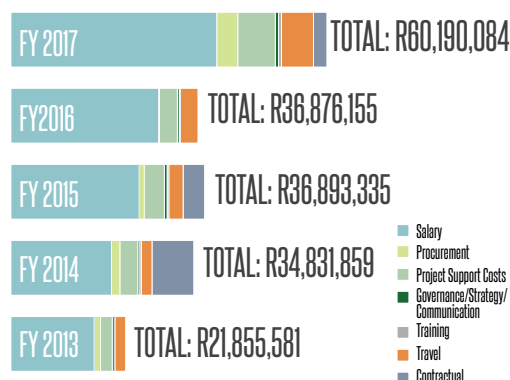
Jembi has assembled a dynamic team in Zambia and South Africa to re-engineer Smart-Care and is excited to be working on such an important initiative.

Corporate Services Overview

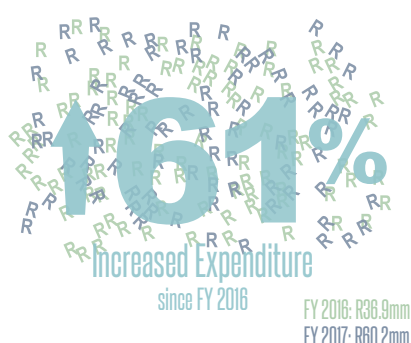
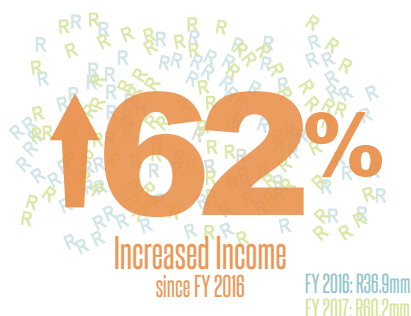
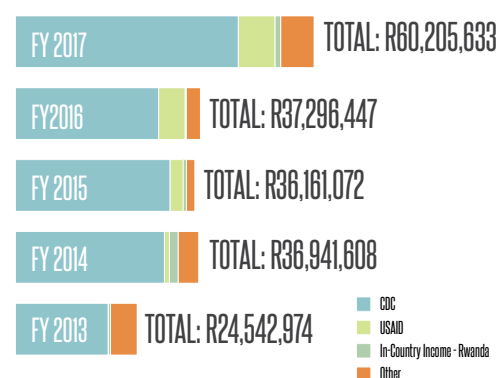
FY 2017: A year of exponential growth and new opportunities

During the period 2016/2017, Jembi Health Systems experienced a significant spike in growth. This was primarily linked to many pipeline opportunities coming to fruition. As a result, Jembi is now entering another growth stage, with the organisation's annual income rising from R3 million in 2010 to R60 million at the end of 2017, and expenditure figures closely aligning to income over the same periods. See FY 2016-2017 Audited Accounts for further detailed information on financials.

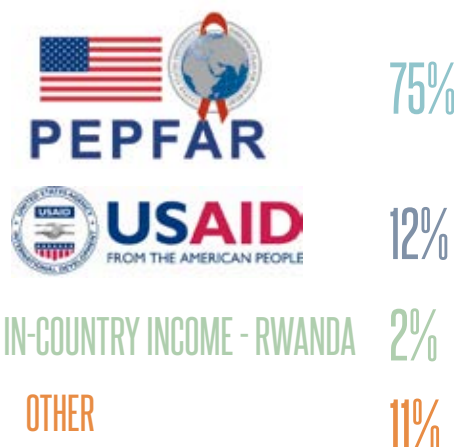
TOTAL EXPENDITURE FY 2013 - 2017



TOTAL INCOME FY 2013 - 2017



FY 2017 INCOME BY SOURCE



Income breakdown

The income comparison from end of Financial Year 2016 to end of Financial Year 2017 increased by 61%. Jembi's income in this Financial Year was derived largely from United State's government federal grants, representing 87% of the total income and split between the Centers for Disease Control (75%) and USAID (12%) both through prime awards and sub agreements. The remaining 13% of annual income was derived from smaller contract projects with South African-based donors and clients as well as the international community.

Reserve funds

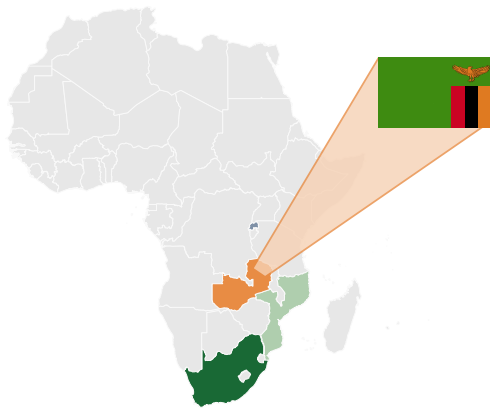
At the end of the financial year Jembi was able to add funds to its retained earnings after having spent funds against reserves in the previous year. This allowed Jembi to utilise retained earnings/reserves in the present year to further its vision.

“We are an African not-for-profit organisation improving global health by developing information systems, growing partnerships and building local capacity, with a focus on developing countries.”

- Jembi Health System's mission

“A world in which health systems and information advance global health”

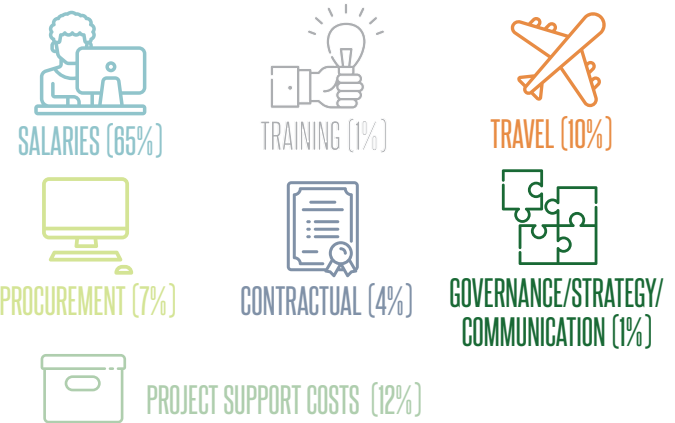
- Jembi Health System's vision



Jembi: Zambia

An important development in this financial year was the opening of Jembi's newest office in Zambia. In addition to its head office in South Africa, Jembi now has three country offices in Mozambique, Rwanda and Zambia. Jembi's projects and activities programmes are grouped into the following four programmes: South Africa, Blood Safety Strengthening, Mozambique and Regional. Jembi's Regional programme includes projects and activities in Rwanda, Zambia and a new Programme as a sub awardee under the USAID-funded Regional Action Through Data (RAD) programme.

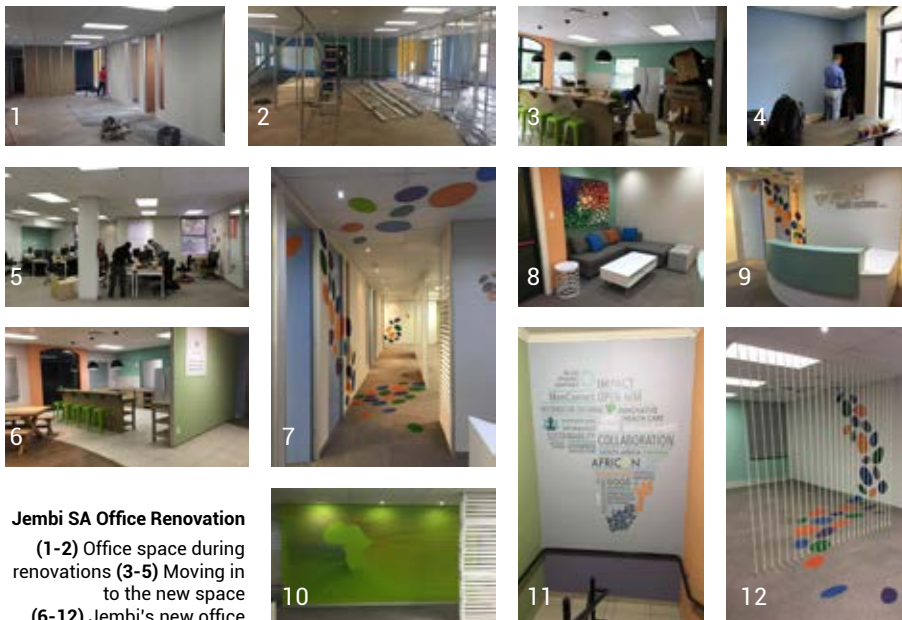
FY 2017 EXPENDITURE BY CATEGORY



Staff growth and productivity

At the end of February 2017, Jembi staff numbers had increased to 82, with South Africa experiencing the highest increase of staff at 65%. This has increased again in the new financial year, with staff numbers surpassing 100. This matches another year of growth, which has brought many exciting changes and opportunities to Jembi's global operations.

Expenditure figures including capital procurement increased to R60 million over the year with the largest percentage of expenditure being linked to staff costs of R39 million (65% of total expenditure). Staff continue to excel in the delivery of projects, developing highly specialised information systems and providing implementation support. The staff core at Jembi has now expanded to include a new Product team including analysts, creative designers and product managers. This team is proving to be a valuable resource leveraged by clients and the Programme and Technology divisions, and further improving the high-level programmes being managed through Jembi.



Jembi SA Office Renovation
(1-2) Office space during renovations (3-5) Moving in to the new space (6-12) Jembi's new office

Jembi: South Africa

To keep pace with the rapid increase in income, expenditure and corresponding staff growth, Jembi's South Africa office relocated to new premises in FY 2017. The space was designed specifically to fit the needs of Jembi's staff, including a training room, colorful and inspiring common spaces, and a number of small meeting areas to foster collaboration.

Research & Publications

Presentations

2016-05: Africa Society for Blood Transfusion (AfsBT) Congress Kigali / C Fourie / Open Source BECS: Design and Implementation Approaches and Guides for Low-Resource Settings

2016-05: Africa Society for Blood Transfusion (AfsBT) Congress Kigali / C Fourie, R Cornell, L Taylor and D Futerman / BSIS & BSSP "Open Source Blood Safety Information System for Low Resource Settings"

2016-08: DHIS2 Experts Academy Oslo / P Dane / OpenMRS-DHIS2 Interoperability
<http://www.jembi.org/dhis2-experts-academy-oslo/>

2016-09: Interagency Advisory Meeting on Guideline and Implementation Toolkit for Digital Strategies for Reproductive, Maternal, Newborn, Child and Adolescent Health (RMNCAH) Geneva / Prof C Seebregts
<http://www.jembi.org/jembi-participates-meeting-develop-toolkit-digital-strategies-rmncah/>

2016-10: MeSH Consortium Estonia / Prof C Seebregts / Data interoperability: Utilizing HIV and non-HIV Data
<http://www.jembi.org/chris-seebregts-mesh-consortium-estonia/>

2016-10: Unicef Meeting on Better Data for Women and Children New York City / Prof C Seebregts / Strengthening CRVS across the Continuum of Care
<http://www.jembi.org/jembi-attends-unicef-meeting-better-data-women-children/>

2016-12: Digital Health Summit Washington / C Fourie / Rwanda HIE Use case and experiences in Health Information Exchanges

Publications

Seebregts CJ, Pillay A, Crichton R, Singh S, Moodley D. Enterprise Architectures for Digital Health in Global Health Informatics: Principles of eHealth and mHealth to Improve Quality of Care. MIT Press. (2017)

Seebregts C, Barron P, Tanna G, Benjamin P, Fogwill T. MomConnect: an exemplar implementation of the Health Normative Standards Framework in South Africa. South African Health Review, 2016

Ogundele OA, Moodley D, Pillay AW, Seebregts CJ. An ontology for factors affecting tuberculosis treatment adherence behavior in sub-Saharan Africa. Patient preference and adherence, 2016

Broyles D, Dixon BE, Crichton R, Biondich P and Grannis SJ. The Evolving Health Information Infrastructure. Health Information Exchange (2016)

Cornell R and Fourie C. It's not just about software: Factors in the selection/design of IT solutions for developing country blood services. Transfusion Today | Number 108, September 2016



Delegates at MeSH Symposium



Innovative technology solutions
for improved healthcare



**EMPOWERING
CODE**

**OPEN
ARCHITECTURE**

We change tomorrow
by starting today

Connecting to change the world

From the lab to the people

Investment in local capacity

IMPACTFUL | **INFORMATION GOVERNANCE**

Better health services through
information systems



System
strengthening

Sound the drum of
health information

Healthy technologies

Diverse



Rwanda

Crème de la crème

Mozambique

Em direção da saúde digital

EXCEEDING
EXPECTATIONS

Zambia

Accomplishment through collaboration



Great place to work

INTER-OPERABLE

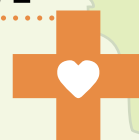
**South
Africa**

COLLABORATION

Learning

PROGRESSIVE

People
over profit



Data creates
informed decisions

The "go-to" for health tech

Partnerships



EFFECTIVE

Technology with integrity

African innovation

Jembi in Words

Jembi Collaborators



JEMBI SOUTH AFRICA

Unit 3B Tokai on Main
382 Main Road
Tokai
Cape Town
South Africa
T: +27 21 701 0939
F: +27 21 701 1979
E: info@jembi.org
www.jembi.org

JEMBI MOZAMBIQUE

Av Julius Nyere
Nr. 3326 Condomi'nio
Diplomatic Village
Casa nr. 1
Maputo
Mozambique
T: +258 2190 2424 /
+258 2306 9636 /
+258 4306 9636
E: info@jembi.org /
suporte@moasis.org.mz
www.jembi.org
www.moasis.org.mz

JEMBI RWANDA

14th Floor, KN 2 ST
Nyarugenge
Plot nr. 6418
Kigali
PO Box 6428
T: +250 78818 0111
E: info@jembi.org
www.jembi.org

JEMBI ZAMBIA

F377a/H/3 Kabulonga Road
Kabulonga
Lusaka
Zambia
T: +260 21126 9665
+260 97169 5108
E: info@jembi.org
www.jembi.org

