ANNUAL REPORT

17/18

Jembi

South Africa Rwanda Mozambique Zambia

Design by Jennifer Geib {writing + design}

ACRONYMS

CDC	United States Centers for Disease Control
CRVS	Civil Registration and Vital Statistics
DATIM	Data for Accountability Transparency Impact Monitoring
FHIR	Fast Healthcare Interoperability Resources
HIS	Health Information Systems
HISP	Health Information Systems Program
HMIS	Health Management Information Systems
IDeAS	Integrated Decision and Analytics Support
M&E	Monitoring and Evaluation
MoU	Memorandum of Understanding
MSH	Management Sciences for Health
NDoH	National Department of Health
NFC	Near Field Communications
OHIN	OpenHIE Implementers Network
OpenHIM	Open Health Information Mediator
POPI	Protection of Personal Information
SIS-MA	National Health Information System for Monitoring and Evaluation (Mozambique)
SI-M&A	Monitoring and Evaluation Information System (Mozambique)
SLA	Service Level Agreement
UCT	University of Cape Town
USAID	United States Agency for International Development

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LETTER FROM THE CHIEF EXECUTIVE OFFICER

It is a great privilege to be able to report on the accomplishments of Jembi as it continued to deliver on its core mission during the 2017 to 2018 financial year. The global increase in digital health interest has positively impacted on Jembi's activities, resulting in increased recognition and demand for its products and services. After a period of growth in the previous financial year, Jembi focused more, during this period, on building internal structures within the organisation and laying the foundation for a projected increase in activities in 2018 and 2019. Income and staff numbers remained fairly constant over this period, but are expected to increase in the next year and going forward. Jembi continued to settle into its new headquarters in Cape Town and operate its country offices in Mozambique, Rwanda and Zambia.

Jembi's Programs Division had a particularly strong year, with a number of exciting new projects emerging. Several years of strengthening health information systems in Mozambique have resulted in a bold new project with CDC to implement a national point of care (PoC) electronic medical record (EMR) system. This system will be implemented in more than 60 health facilities during 2018, with further expansion in the future. In addition to its traditional health management information system (HMIS) activities and a new project in One Health, this will include growth in the core office in Maputo as well as in the provinces.

In South Africa, Jembi has strengthened its projects with the National Department of Health (NDOH) in the core focus areas of maternal, newborn and child health, HIV and TB, as well as in the national health information systems. Building on the success of the NDOH's MomConnect project, Jembi started a mobile health programme within the South Africa programme. The first deliverables of the new mHealth programme during 2018 will include working with NDOH on a digital Road to Health app based on an mHealth services platform. A notable achievement was the appointment by the South African Medical Research Council (SAMRC) of the Jembi–SAMRC Collaborating Centre for Digital Health Innovation (CCDHI). Jembi is undertaking a number of new projects with the CCDHI, particularly within the public sector in South Africa.

Jembi's Regional Programmes also achieved a milestone in the Regional Action through Data (RAD) project, with the development of a patient-retained personal digital identification card that will be implemented in two countries in East Africa during 2018. During the same period, Jembi completed its work on the IDeAS project on SmartCare in Zambia, which was transferred to BroadReach. After a funding hiatus, Jembi's Blood Safety Information System (BSIS) programme was refunded during 2018, and Ghana and Ethiopia both went live with BSIS implementations during this period.

Jembi also implemented two new programmes. The International and Contracting programme is focusing on collaborations with international and private sector organisations, and on the development of Jembi's core products and services. The Innovation and Partnerships programme is developing a number of exciting new technical innovations as well as strategic partnerships with other organisations.

Jembi's Technology Division continues to expand, and now includes almost 30 software developers, analysts and product owners. The division continues to refine its processes and use of modern software engineering methods to develop high quality software and health information systems, consistent with international quality and standards. The Technology Division is a core asset for Jembi, and it is expected to continue its growth trajectory by developing its core competencies, and by extending its support to new technologies and services. The division is also strengthening its competencies in several new directions, including user experience/user interface design and analysis.

Jembi's Corporate Services Division continued to provide strong financial, legal, human resources and administrative support to the entire organisation, across all four countries. Notable achievements during this period include another unqualified audit for the sixth year running, and the implementation of a new Human Resources manager position. The new HR manager is enabling Jembi to strengthen its focus on human capital development, and to assist with management of Jembi's most important asset. The division faced a challenging time during this period, following the unfortunate and untimely passing of IT Manager Quintin Spies. However, the division managed to keep the core IT systems running over this period and before the appointment of a new IT manager.

I am proud of Jembi's achievements over this period, and believe that the organisation has laid a solid foundation to respond to the new opportunities arising in the digital health sector.

Dr Chris Seebregts
Chief Executive Officer

LETTER FROM THE BOARD CHAIRMAN

Thank you for taking time to read our Annual Report, to which I am honoured to contribute a short comment from the perspective of the Board of Directors. As an academic involved in primary health care, I see information as the lifeblood of all health systems, because without it we are reduced to operating on guesswork and opinion rather than evidence. The health systems in South Africa and many sub-Saharan countries often lack the software and hardware to make valid information accessible to managers and health workers, to facilitate decision-making in resource-constrained situations. This makes the work that Jembi does vital to well-functioning health systems in Africa setting the bar high by benchmarking against international standards.

The financial year has flown past, and it has ushered Jembi into yet another growth phase, as technical and operating systems have stabilised to offer a solid platform for innovative projects. This is in no small part a direct outcome of the forward-thinking brilliance of our CEO, Dr Chris Seebregts, but I must emphasize that Jembi is a team effort. As I said at the 2017 end of year function, it is like playing music: the role of every individual member of staff is crucial, but only together does the music actually happen.

There has been a pleasing diversification of projects over the past few years, including more work in South Africa as well as regionally, even though our Zambia operation has gone into a dormant state for the time being. We are thankful to the team there, including Dr Wilbroad Mutale and Douglas Chiyesu, for work well done. We were shocked by the untimely death of Quintin Spies last year, and our sympathy has been with Lindie and the family. In a small company, a loss like this is felt deeply by everyone.

I am grateful to Nolwazi Gasa for her contributions to the Board as she steps down after more than three years of service. She will be difficult to replace. My thanks also to Deshen Moodley, who filled in for me as deputy chair while I was on sabbatical in India. I am back in the role now, and looking forward to another exciting year with Jembi.

Prof Steve Reid
Chairman of the Board

JEMBI IN MOZAMBIQUE

Jembi is a leading partner of the Government of Mozambique in the field of strategic information, monitoring and evaluation. We provide technical support to develop, implement and maintain the information systems, and to collect, analyse and use data from the Ministry of Health (MISAU), the Ministry of Gender, Children and Social Affairs (MGCAS), and the Ministry of Justice, Constitutional and Religious Affairs (MINJUS) with financial assistance from PEPFAR-CDC and USAID.

This year, Jembi's work in Mozambique has had a strong emphasis on planning and defining the infrastructure requirements to implement the Point of Care system in health facilities across the country. Throughout the year, Jembi has dedicated time and effort to providing technical assistance and training to MISAU and MGCAS at central, provincial and district levels to ensure data quantity and quality, and to establish full ownership of the systems by local authorities.

The M&E support rendered to the Government of Mozambique has resulted in:

- the production of statistical reports available at provincial and district level for the health and social welfare sectors;
- discussion at national meetings for both sectors of statistics for national health and social programmes based on the implemented systems;
- the provision of timely and reliable information for Mozambique's Economic and Social Plan (PES).

CAPTURING DATA TO ENSURE REMOTE HEALTH FACILITIES RECIEVE THE GOVERNMENT SUPPORT THEY NEED

Jembi's IT technicians travel to some of Mozambique's most remote areas to collect health facilities' GIS coordinates and to update the national Master Facilities List in partnership with the Government of Mozambique.

USAID Programme

The National M&E System for the Ministry of Gender, Children and Social Affairs (MGCAS), SI-M&A, is functional in 30 sites across every province of Mozambique. The official launch ceremony for SI-M&A was held on 7 December 2018 in the district of Boane where MGCAS, civil society, USAID, social unit representatives, and the national press gathered to witness the potential outcomes of the system for M&E processes in the social welfare sector. The short video of the launch ceremony is available on YouTube under the title, "Ministry of Gender, Children & Social Affairs of Mozambique Launches M&E System". The USAID grant aimed at strengthening the M&E capacity of the MGCAS ended in March 2018. Jembi was awarded a grant as a sub-prime awardee by the Ministry of Foreign Affairs of Italy to work with Maputo-based Italian NGO Terre Des Hommes Italia to expand SI-M&A and improve education programs for pre-school students.

2017/18 KEY ACTIVITIES

- Update of 13 forms for all programmes of the MGCAS.
- Development of two new forms for the MGCAS.
- Roundtable workshop for sectorial statistics discussion based on SI-M&A data.
- Preliminary data report.
- Production of two informative data bulletins for all system users.
- Publication of SI-M&A institutional film, "The Benefits of the National M&E System for the Social Sector in Mozambique", available on YouTube.
- Presentation at DHIS2 Experts Academy on use of DHIS2 platform for the social sector in Mozambique – the first time DHIS2 was used outside of the health sector.

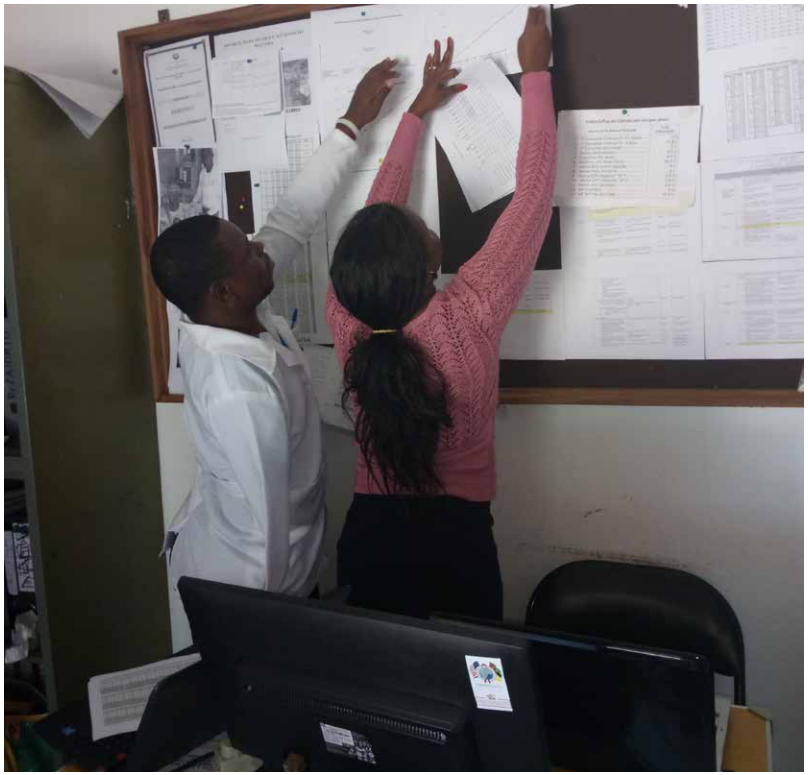
ABOVE LEFT TO RIGHT: (1) Dr Moisés Mazivila, Jembi/Moasis Programme Coordinator; Dr Alessandro Campione, Jembi Programmes Director and Mr António Sitoi, Jembi/Moasis General Coordinator at the SI-M&A launch, (2) Jembi Moasis General Coordinator, Mr António Sitoi, delivering his speech at the official SI-M&A launch ceremony, (3) Prof Leopoldo Nhampossa, Jembi/Moasis Principal Investigator presenting DHIS2 Implementations in the social and health sectors in Mozambique at DHIS2 Experts Conference in Oslo.

CDC Programme

SIS-MA

Between 2014 and 2017, Jembi/UEM-Moasis supported the implementation of SIS-MA, the national M&E system for the health sector, in 161 districts of Mozambique and assisted in the training of 1,092 staff of the national health system. The staff were trained in system use, data collection, analysis and use. SIS-MA has a total of 2,301 users across all provinces and is the national reference system for the generation of health statistics. Most of the activities related to SIS-MA support involved on-the-job training, M&E and data quality support for the production of reports. As a result, the SIS-MA reporting rate in provinces receiving direct support has evolved significantly. Mozambique conducted a National Health Information Workshop where SIS-MA was at the centre of health statistics and discussions and the aggregated data generated from the system is being used to contribute to the national Economic and Social Plan of Mozambique.

In addition to supporting external training, Jembi/UEM-Moasis participated at the 2017 DHIS2 Experts Academy, where we shared information on the nationwide implementation of DHIS2 for the health and social welfare sectors. This was considered to be a unique use of the open source platform as previously it had only been used for the health sector. Two of our staff in Mozambique participated in the DHIS2 Academy focused on Design and Personalisation, where one was awarded a certificate of excellence.



ONGOING HEALTH STAFF TRAINING AND SUPPORT

RIGHT: Jembi/UEM-Moasis M&E specialist Vania Afonso supporting health staff in the publication of epidemiological bulletins in Cabo Delgado Province

LEFT: Jembi/UEM-Moasis IT technician in Maputo, Elisio Mania, providing on-the-job training support to health staff

ROLL-OUT OF THE POINT OF CARE SYSTEM

The team in Mozambique was tasked with the roll-out of the Point of Care electronic medical record system (POC-EMR or POC) in health facilities across Mozambique. As the implementing partner, our work this year had a strong emphasis on the coordination, planning and preparation for the deployment of the system in health facilities throughout the country. Funded by PEPFAR/CDC, this effort seeks to improve the collection and analysis of HIV data at the health facility level.

Some of the key results for the point of care project include:

- The POC roll-out work plan and roadmap were approved by the Ministry of Health and is being executed with PEPFAR/CDC and clinical partners.
- The POC hardware and technology architecture document was produced with technical specifications and recommended infrastructure for POC implementation.
- Assessment protocols and tools were developed for rapid and in-depth assessments of the health facilities where the system will be implemented.
- The POC test laboratory consisting of three rooms and with seven work stations was put together at the Jembi Mozambique office to simulate the structure of a health facility including: reception, lab, pharmacy and medical consultation work stations.
- The Jembi team developed the POC system test protocol.
- Jembi initiated the recruitment of up to 25 staff, including an HR Manager, Implementer Helpdesk, Procurement/Logistics Officer, Hardware/Infrastructure Manager, HR Assistant and Accounting Clerk, to support the implementation of the POC system at the central and peripheral levels.
- Workflow and readiness assessment tools were developed.
- Procurement of equipment and hardware for the roll-out.
- The Permanent Secretary and Heads of Department of the Ministry of Health visited the Jembi office including the POC test lab.

ROLL OUT OF MOZAMBIQUE'S POINT OF CARE ELECTRONIC MEDICAL RECORDS SYSTEM

RIGHT, TOP TO BOTTOM: (1) Permanent Secretary of Ministry of Health Dr Zacarias Zindoga and Jembi Mozambique staff at the Maputo office, (2) The Permanent Secretary of the MoH speaking to Jembi Mozambique management.

MASTER FACILITY LIST

Jembi supports activities aimed at strengthening the national Master Facility List (MFL), as well as developing requirements for the interoperability of systems that benefit from the MFL in Mozambique. The main routine activity for the MFL project was the monthly update of PEPFAR Test and Start facilities across the country, which reached a total of 339 sites for the year. Jembi's IT technicians travelled to some of Mozambique's most remote areas to collect health facilities' GIS coordinates and to update the MFL. Jembi's support also led to:

- the development of functional and non-functional requirements of the MFL management software and a demo of the Alpha Version of the software;
- the development of a proposal for the unique codification of health units in Mozambique;
- the integration and update of demographic data of PEPFAR supported health units into SIS-MA;
- the elaboration of requirements for system interoperability for systems that benefit from the MFL, particularly the interoperability between e-SIP Saúde of the Directorate of Human Resources and SIS-MA of the Directorate of Planning and Cooperation;
- training on interoperability and MFL to MFL Working Group.

CIVIL REGISTRATION AND VITAL STATISTICS

The signing of the MoU between Jembi Health Systems, the University Eduardo Mondlane and the Ministry of Justice, Constitutional and Religious Affairs of Mozambique, which was televised on Mozambique's main broadcaster TVM (Televisão de Moçambique), provided a formal platform for Jembi's participation and support in activities aimed at strengthening Civil Registration and Vital Statistics in Mozambique. In this regard, Jembi participated at the Fourth Conference of Ministers Responsible for CRVS in Mauritania as part of the Mozambique delegation, led by the Permanent Secretary of the Ministry of Justice, Constitutional and Religious Affairs, to study possibilities for a Unique Patient Identifier for the health sector linked with the national CRVS system in Mozambique.

SUPPORTING MOZAMBIQUE'S HEALTH SYSTEM

RIGHT: (1) GPS used to update GIS coordinates for health facilities in Cabo Delgado Province, (2) Delegation of Mozambique at the Fourth Conference of Ministers Responsible for CRVS including Jembi/UEM-Moasis Principal Investigator Prof José Leopoldo Nhampossa

CAPACITY BUILDING

Since the inception of the programme in 2009, training and recruitment of local staff has been at the centre of Jembi's support to national institutions in Mozambique. This is to ensure local ownership and project sustainability. According to data from SIFo, Mozambique's national information systems for health sector training, Jembi supported the training of 1 662 health staff since the beginning of the programme. Jembi aims to continue building local capacity of health and social sector staff, students and young professionals. These efforts led to the formalisation of our cooperation with several national institutions through the signing of agreements and Memoranda of Understanding (MoUs) during the 2017-2018 period. The institutions include:

- the National Institute of Employment, which operates under the Ministry of Labour, Employment and Social Security,
- the University Eduardo Mondlane and the Polytechnic University of Mozambique,
- the National Directorate of Human Resources in the Ministry of Health,
- the Regional Centre for Health Development (CRDS-Maputo).

Our cooperation with the above-mentioned institutions has produced the following results:

- Five interns hosted at our offices in the areas of M&E, data analysis, IT and resource mobilisation: two in Cape Town and three in Maputo.
- The internship opportunities provided to young professionals and students from Mozambique led to Jembi receiving the Internship Award from the National Institute of Employment.
- Support for training of 33 health technicians in the Medium Health Statistics Course at CRDS-Maputo.
- 102 staff of the Central Hospital of Maputo were trained in ICD-10 codes.
- 1 092 staff received SIS-MA training in all provinces from 2014 to 2017.
- 282 staff from the Ministry of Gender, Children and Social Affairs, including 134 men and 148 women, received training in system use, data collection, analysis and use for the Ministry's monitoring and evaluation system, SI-M&A, based on DHIS2.




ABOVE LEFT TO RIGHT: (1) Jembi Representatives receiving the Internship Award: Dr Zainabe Dadá, Project Coordinator and Dr Moisés Mazivila, Jembi Mozambique Programme Coordinator, (2) Jembi Mozambique Programme Coordinator, Dr Moisés Mazivila, at the Graduation Ceremony for the training of 102 health staff in ICD-10 codes at the Central Hospital of Maputo, (3) Opening ceremony for Medium Health Statistics Course at CRDS-Maputo, (4) Jembi/UEM-Moasis coordinator, Dr Moises Mazivila, addresses the new class of mid-level health statisticians during the statistics course opening ceremony.

JEMBI'S 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.

RAD

RWANDA

ZAMBIA

MAKING CHILDREN'S HEALTH RECORDS MORE EASILY AVAILABLE:

As part of the RAD programme (see next page) Jembi developed three NFC-embedded "Journey Cards": (1) the Caregiver & Child card used by caregiver to carry the child's immunisation history, (2) the Healthcare worker card used to enable healthcare workers to access the system and provide immunisation services, and (3) the Administrator card used by administrators to create new healthcare worker cards and generate facility reports.

RAD (Regional Action through Data)

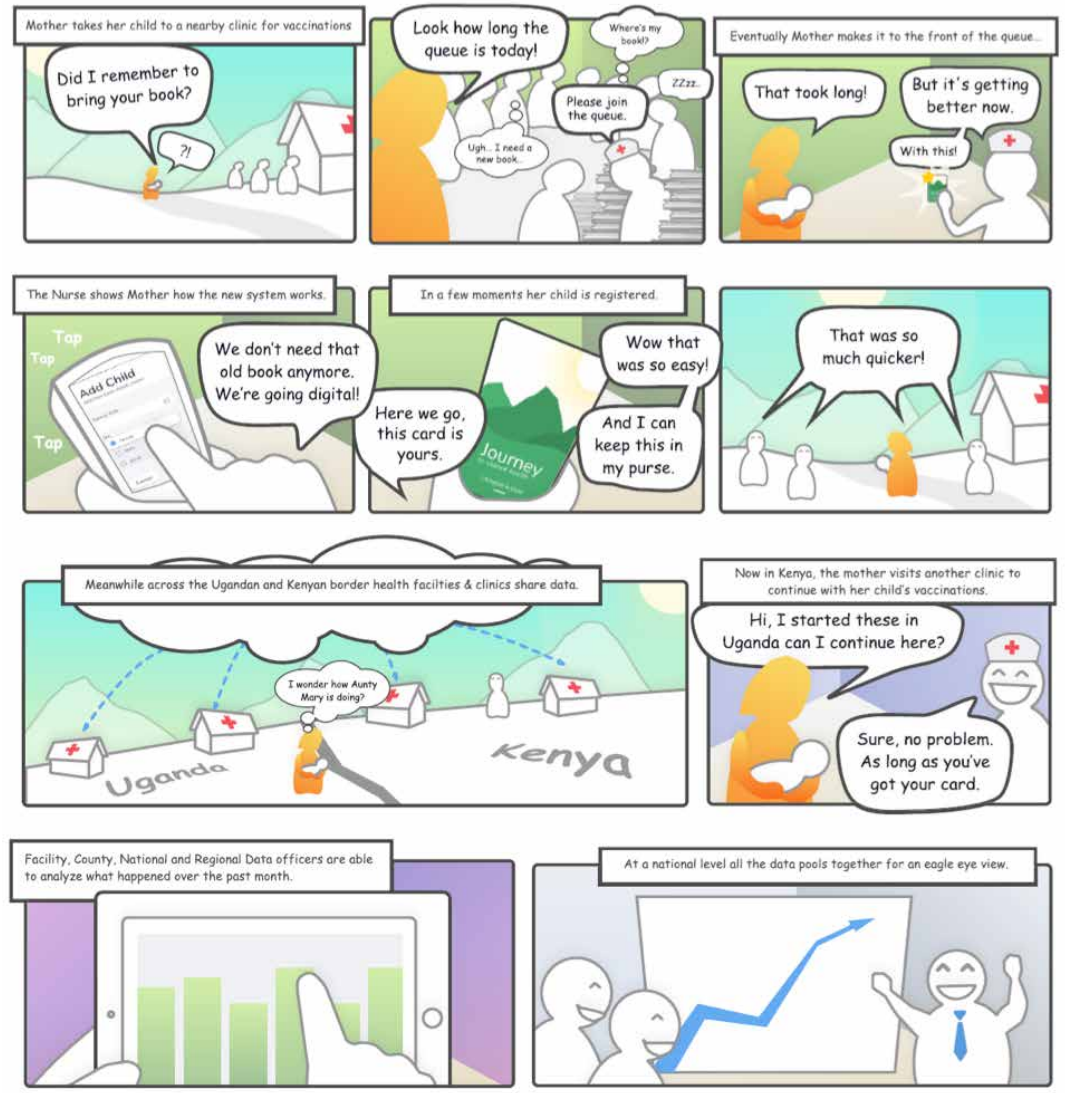
Jembi has partnered with BroadReach Healthcare (Prime Awardee) as part of a consortium with Duke University, the Intergovernmental Authority on Development (IGAD) and the West African Health Organisation (WAHO) in response to the Regional Action through Data (RAD) Project funded by the USAID Africa Bureau 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 and analytics 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 innovative technologies to improve continuity of care for mobile cross-border populations.

Jembi is leading the design and development of the Patient-Provider Level solution, which is initially focused on an immunisation use case with the intent of expanding this to support other priority services.

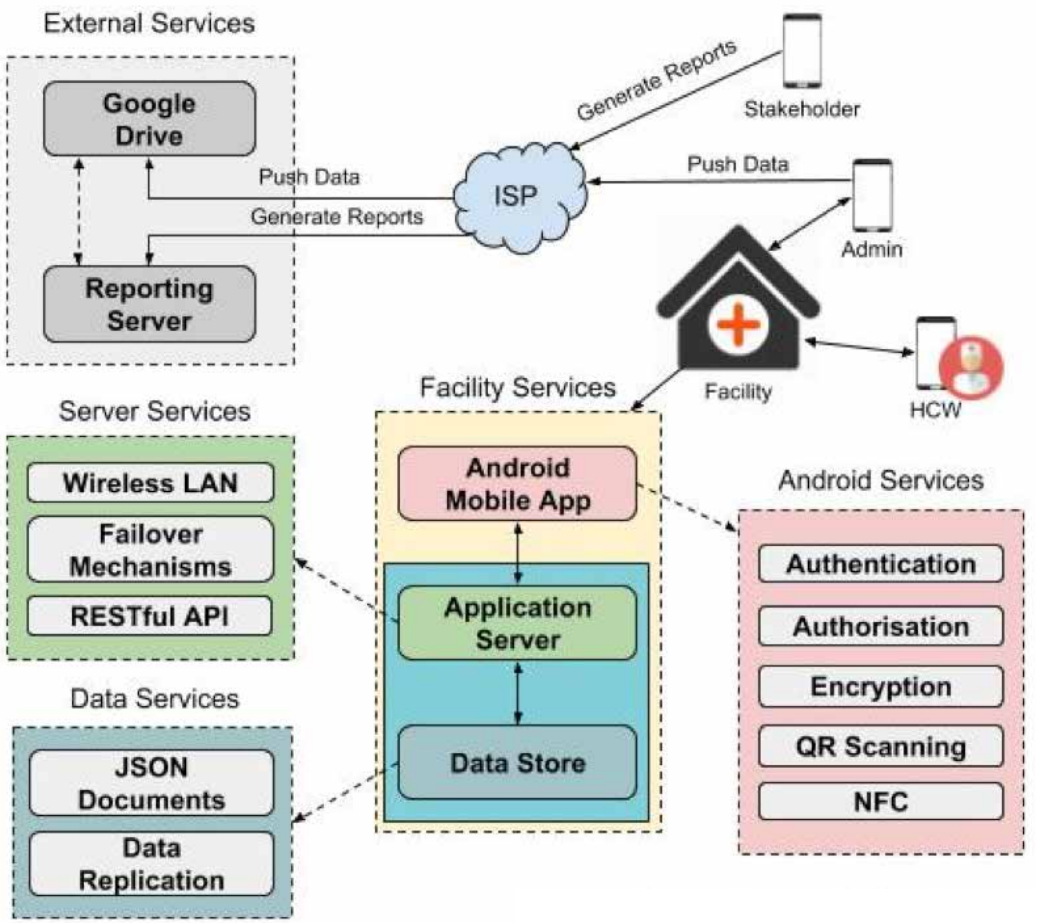
We are currently in year two of this five-year project. During year two our focus is to develop an offline mobile application, which will be piloted across four sites (i.e. two sites on the border of Kenya and two sites on the border of Uganda). The sites will be able to share data through the means an NFC-embedded card which will be issued by a health worker to the immunised child. This technology will be expanded on in subsequent phases of the project to support online data sharing within member states and cross borders, where a child's record will be available in all health facilities without the need to carry it on NFC-embedded cards at all times.



CONTINUAL IMPROVEMENT TO THE SOLUTION

In year two of the RAD programme, Jembi will implement a solution that will allow children and their caregivers to easily access their health data across country borders.

At the IGAD Inter-ministerial meeting in Addis, Ethiopia, the Jembi team used a demonstration kit that Jembi developed to showcase our solution (called the "Journey") . It consists of 2 Chainway C6000 devices (which will be used as mobile devices to capture immunization data at the health facility), 3 packs of NFC cards for the Caregiver, the Health-worker and the Administrator, as well as a 10" Tablet representing the local server we will be deploying to each health facility. The objective of this demonstration kit is to help with advocacy during meetings with potential partners and donors.



The current system architecture for the pilot

ABOVE TOP TO BOTTOM: (1) Jembi team showcasing the IGAD-RAD Demonstration Kit developed by Jembi at the Inter-ministerial meeting in Addis Ababa, Ethiopia. Left to right: Wayne Naidoo, Prof Chris Seebregts and Dr Richard Gakuba; (2) The Jembi team presenting the IGAD RAD patient-provider solution (i.e. Journey application) to the Kenya/Uganda cross-border committee in Busia County, Kenya. From left to right: Dr Richard Gakuba and Richard Langford; (3) RAD pilot site visit by Dr Richard Gakuba, Richard Langford, Martin Weiss and Wayne Naidoo.

Zambia

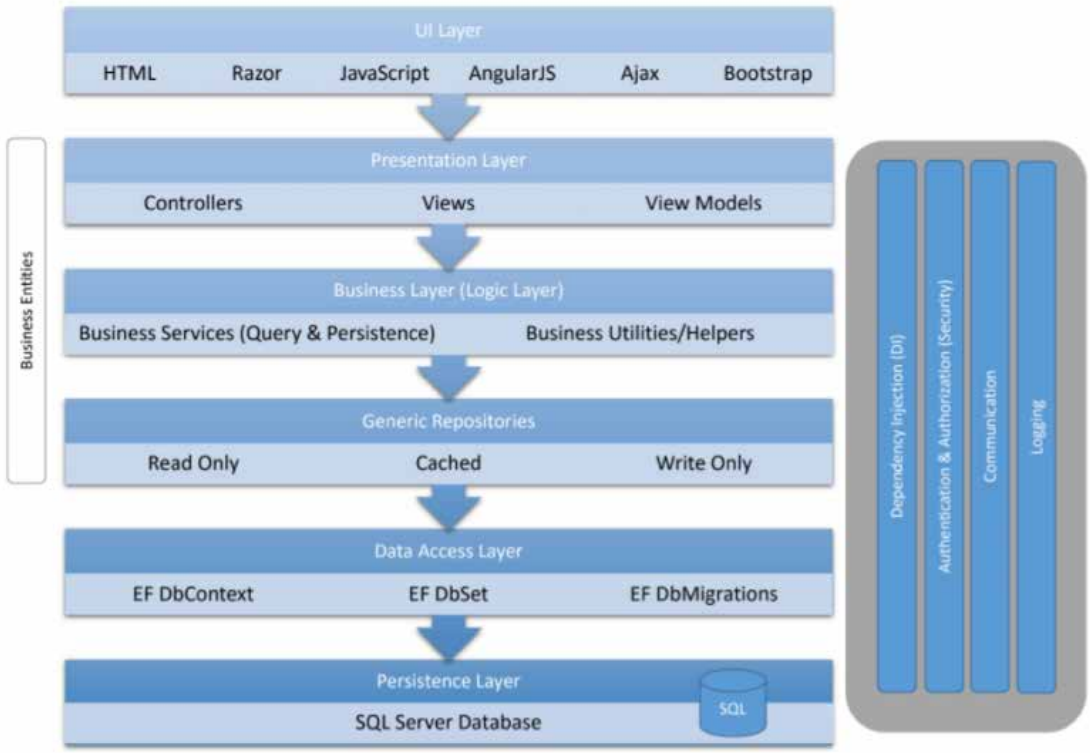
The Integrated Decision and Analytics Support (IDeAS) Project Consortium supports the Zambian Ministry of Health (MoH) in improving integration and interoperability of data from multiple systems, including but not limited to:

- 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.

As part of the project consortium, Jembi initially developed the re-engineered Smart-Care (EHR) Platform, building off the original Smart-Care implemented in Zambia as well as the proof of concept re-engineering effort developed by CDC. Jembi was able to accomplish the hardening of the underlying platform, build an initial layer of the OPD services and create a dynamic form builder that allows clinicians to develop their own clinical templates and forms across services within a few months. The solution architecture is depicted on the right.

Following the successful delivery of the new re-engineered Smart-Care platform in year one to BroadReach, Jembi's scope of work in year two has shifted to providing business analysis support to Broadreach for the remaining service areas, following which Jembi's support to the project will discontinue. We are very happy to be part of this initiative and hope that our work has a significant impact on the Zambia EHR system.



IMPROVING SYSTEM INTEGRATION AND INTEROPERABILITY

ABOVE: Solution architecture for the newly re-engineered Smart-Care Platform

RIGHT: Jembi team at the design workshop held in Ndola, Zambia in January 2018. Left to right: Lisa George, Dr Joseph Balikuddembe, Zane Dickens

Rwanda

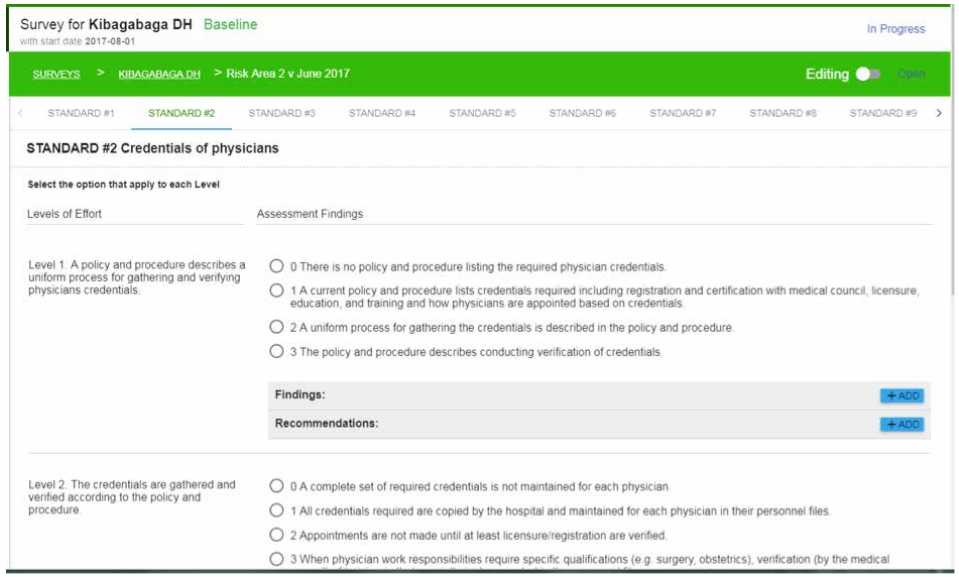
Jembi's Rwanda Programme supports a number of strategic projects funded by CDC and USAID. We work closely with the Ministry of Health (MoH), Rwanda Biomedical Centre (RBC), Rwanda Social Security Board (RSSB) and the University of Rwanda, School of Public Health (SPH) on a range of projects from supporting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

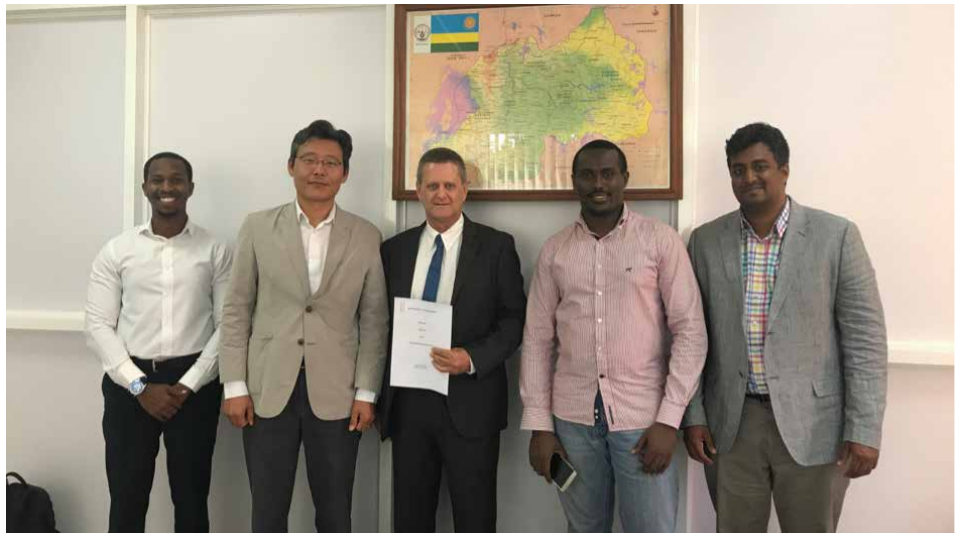
Jembi was awarded a sub-contract by MSH under the Rwandan Health Systems Strengthening Activity (RHSSA) project through which we have provided support on a number of strategic initiatives, including:

- Developing Business Processes and User Requirements in support of the national electronic medical record (EMR) roadmap development.
- Contributing to the EMR and Interoperability sub-strategies of the eHealth Strategic Plan.
- Development of Business Processes and Requirements for an electronic claims management system for RSSB including new features requirements development for the Mutuelle Membership Management System (a system previously developed by Jembi for the Community Based Health Insurance Scheme through the MoH).
- Development of an electronic Health System Accreditation Solution which has been successfully implemented.

We also provide technical assistance for the MoH Health Facility Accreditation Solution Jembi developed while the local team led by MSH conducted user acceptance testing. In the fourth quarter of 2017 our team helped support the accreditation app go live.

Jembi is currently in discussions with MSH with regards to our





MSH ACCREDITATION APP AND AOS MoU SIGNING

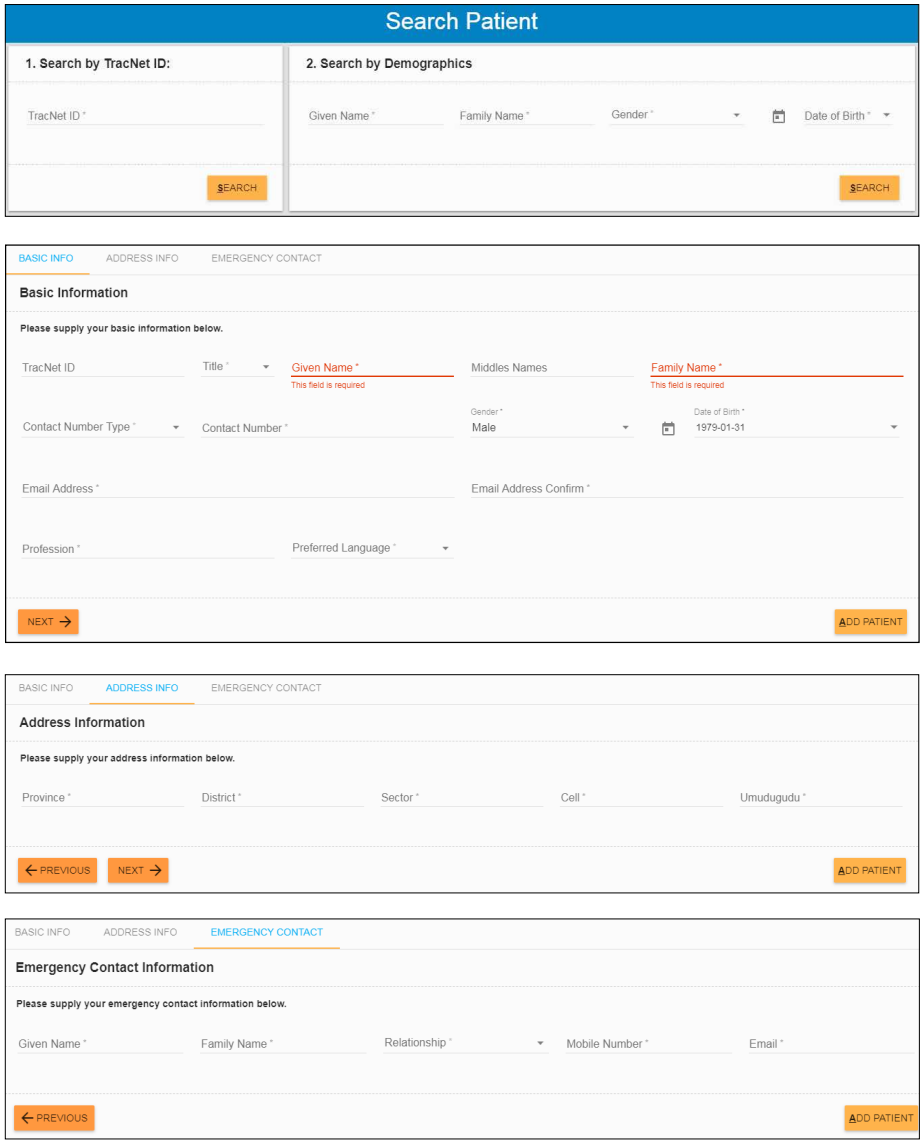
ABOVE, TOP TO BOTTOM: (1) Rwanda MSH Accreditation App Screenshot, (2) Jembi Team signing MoU with AOS. Left to right: Martin Carlos Mwizerwa, AOS Chief Marketing Officer; DaeHeak An, AOS CEO; Prof Chris Seebregts, Jembi CEO; Dr Richard Gakuba, Jembi Senior Regional Advisor and Wayne Naidoo, Senior Programme Manager

continued support of the Rwanda Health Information Exchange (HIE) by providing support on the development of the terminology service. MSH has also expressed interest in Jembi helping with the development of DHIS2 software that is used by the MoH for the National HMIS as well as the data warehouse. Jembi will develop a synch mechanism for the HMIS to update the data warehouse automatically whenever a data audit is carried out in the HMIS.

Jembi has signed an MoU with the University of Rwanda to provide capacity development support through the Centre of Excellence for Biomedical Engineering and eHealth (CEBE).

Jembi also signed an MoU with Africa Olleh Services (AOS) in Rwanda. AOS is a joint venture between the Government of Rwanda and Korea Telecom. The government of Rwanda has been pioneering innovations in digital health for over a decade. AOS has been given a mandate to lead the implementation of government IT projects in Rwanda in key sectors that include the health sector and social security. In terms of the MoU, Jembi and AOS will collaborate in the development of software and IT solutions for the health sector. A number of potential areas of collaboration have been identified, including:

- Technical assistance in Digital Health Strategic and Operational Planning.
- Strengthening the Rwanda Health Information Exchange Implementation.
- Implementation of Electronic Medical Records Solutions.
- Implementation of Public Health Information Systems.
- Capacity Building.
- Collaborating on other digital health projects in other countries in Africa.



RWANDA CASE BASE SURVEILANCE (CBS) PROTOTYPE

Screenshot of the Web-Based CBS Prototype

JEMBI IN SOUTH AFRICA

adapted from © 2015 Arturo Sanabria, Courtesy of Photoshare

The 2017/18 Financial Year saw Jembi looking to expand applications of the national Health Normative Standards Framework while continuing to strengthen existing work. The African Health Information Exchange (AHIE) continued into its second grant year with the successful development and piloting of a local version of the OpenHIM service. Maintaining the OpenHIM interoperability layer of the National Department of Health's MomConnect initiative remained a key objective for Jembi. A new initiative at the end of 2017 with the National Department of Health to build out its mHealth framework, saw the growth of Jembi's support for South Africa's continuing work on improving maternal and child health through the development of innovative open source technology.

CONNECTING MOMS TO HEALTH CARE

Since 2014, Jembi has partnered with the South African National Department of Health to power the MomConnect platform, which to date has enrolled nearly 2.1 million pregnant mothers and mothers with children under 1 year.

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 health care facilities in South Africa. Nearly two million mothers have enrolled on MomConnect since its launch on 21 August 2014, with the 2016 launch of NurseConnect expanding the service to primary health care facility nurses providing antenatal and post-natal care to pregnant and lactating women.

2017/18 KEY ACTIVITIES

- Continued support of MomConnect and NurseConnect 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.
- 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. At peak over 10 000 requests per hour continue to be received through the OpenHIM. Jembi continued to upgrade the OpenHIM to meet new partner requirements and specifications.
- Participation in the MomConnect panel at the annual Global Digital Health Forum in December 2017 was an additional exploration of the work involved in maintenance of a national instance at scale.
- Jembi was asked to co-author papers on the MomConnect service for a special supplement of BMJ Global Health, led by the National Department of Health for publication in the second quarter of 2018.

The Malaria Information System

The Malaria Information System is part of the DHIS2-based development by HISP-South Africa of an Integrated Disease Surveillance and Response (IDSR) for South Africa's public healthcare system. Jembi partnered with HISP-South Africa to develop the Malaria Information System (MIS) for the National Department of Health: Malaria Directorate, with funding from the Clinton Health Access Initiative. The project ran from September 2017 to March 2018.

2017/18 KEY ACTIVITIES

- Development of required DHIS2 modules, integration of legacy data, and the integration of the existing MalariaConnect SMS-based facility case notification system into the IDSR. The MalariaConnect integration utilised the same infrastructure as the National Department of Health's MomConnect service, with the OpenHIM acting as the interface between the front end cellphone notification service and the back end DHIS2 aggregate information platform.

The mHealth Framework and NDoH App Store

The mHealth Framework and the National Department of Health (NDoH) App Store build on the technological success of the MomConnect architecture as the basis for an integrated digital architecture. This strengthens the capacity of the NDoH to offer integrated information services as well as potentially improve clinical service provision. Advantages to the NDoH will include lower data costs as well as better content, app and data management. The project is funded by the Department of Science and Technology through the Medical Research Council, the Johnson and Johnson Foundation and the ELMA Foundation. The project was initiated in November 2017 and is funded through to September 2019.

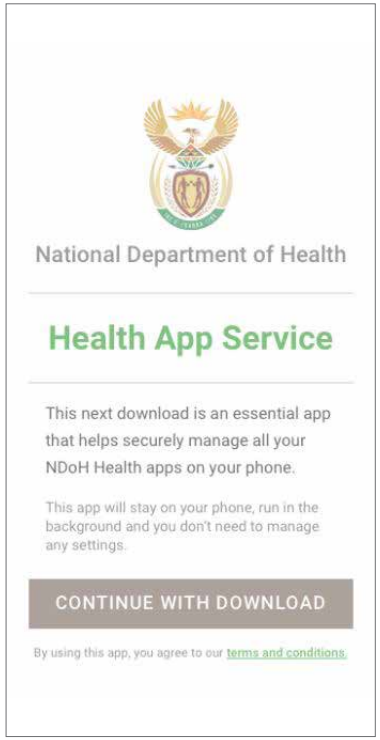
OBJECTIVES

The mHealth framework will:

- allow the NDoH to control applications offered in the public health sphere,
- reduce mobile application fragmentation,
- assist in the enforcement of POPI,
- provide valuable insight into mobile application uptake, usage and impact.

Both patients and healthcare workers will interact with the framework through the NDoH App Store, which will host and provide access to NDoH-certified mobile apps at no cost to the end user. The system will ensure that all apps deployed in the public health system through the NDoH platform will contribute data into the public health information system, and consume data from common registries and services. This will avoid a situation where multiple mobile apps are sending and receiving data to and from isolated and siloed information systems.

The first reference application in the NDoH App Store is a Road to Health app for android phones, in line with the Department's revised Road to Health booklet (a critical document in monitoring and maintaining the health of newborns and children in South Africa). Additional funding was received from MMI Holdings for the Road to Health app. The app is targeted for release at the end of the second quarter of 2018.



SUPPORTING SOUTH AFRICA'S NATIONAL DEPARTMENT OF HEALTH

(1) Draft prototype of a Road to Health android app screen (2) Jembi featured in the Department of Health 2018 publication

The African Health Information Exchange

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

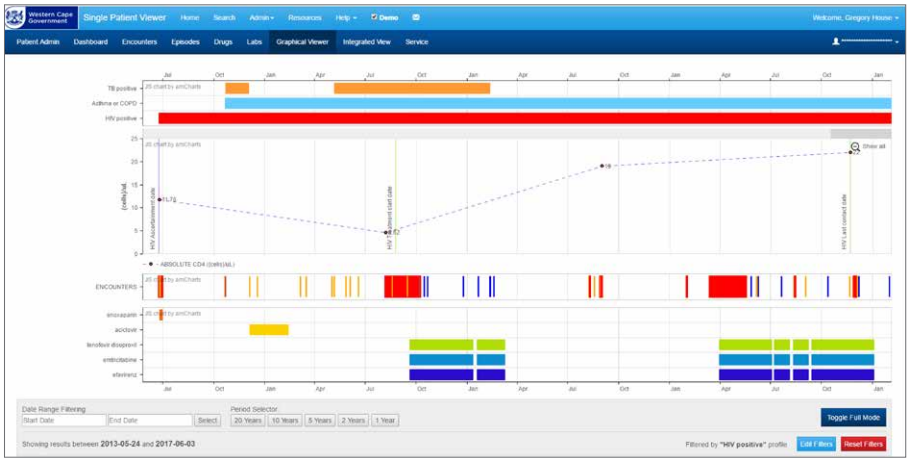
- **Mature openly available technologies** to harmonise person-level health data to function as a standards-based health information exchange and disease cascade reporting system.
- **Implementation of a health information exchange** for clinical data suitable to the public health system in South Africa.
- **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, and 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. Jembi built a local version, the OpenLHIM to draw national level electronic National Health Laboratory System data into non-networked facility TIER.Net applications (the central public healthcare HIV and TB management system). Work continues on developing the OpenLHIM within the interoperability challenges common to public healthcare facilities in South Africa.

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. The application was matured and is currently being tested within the Western Cape public healthcare system.



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

INNOVATIONS AND PARTNERSHIPS

Jembi's newly-formed Innovation and Strategic partnership group aims to partner with research, academic and industry to nurture relationships to drive digital health and innovation. The strategy is to align development, reduce redundancy and enable partnerships to flourish within public health information systems. As mHealth is growing rapidly worldwide, South Africa is at the forefront of developing technologies that will have a massive, beneficial impact on public health recipients. Jembi believes that bringing together partners with specific aims will assist in accelerating these developments.

South African Medical Research Council

In March 2018, the South African Medical Research Council (SAMRC) in partnership with Jembi formed the Jembi SAMRC Collaboration Centre for Digital Health Innovation (CCDHI). The intent of the CCDHI is to provide the SAMRC with technical support in achieving their strategy for digital health, as well as act as a coordinating entity for future digital health development in South Africa. For Jembi, this important recognition supports the strategy and direction that Jembi has embarked on: strengthening health systems and being a relevant provider of solutions to the South African National Department of Health (NDoH).

An official launch is planned for later this year as well as a national roadshow to both academic institutes and industry to engage with potential developers of digital health solutions. This roadshow will also provide training on how mobile applications can integrate onto the Jembi HealthConnect platform – a central management portal for NDoH mobile apps, the intention to connect to the public health infrastructure.

The CCDHI will work closely with stakeholders such as the Meraka Institute of the Council for Scientific and Industrial Research (CSIR) and the National Health Laboratory Systems (NHLS) to ensure interoperability between technologies and accelerating deployment of curated solutions to the NDoH.

Presentations

Jembi presented at the following events:

- **IST-Africa 2017 Conference:** Jembi, in collaboration with the Meraka Institute, presented a paper *Blockchain as an enabler for public mHealth solutions in South Africa.*
- **Workshop on Mental Health 2017 hosted by the SAMRC:** Jembi presentation on mHealth and eHealth in South Africa.
- **UNISA mHealth Seminar 2018 – mHealth in South Africa: Possibilities and Challenges:** Jembi presentation on *Collaboration and mHealth in South Africa.*
- **icABCD 2018 conference***:* Jembi has been accepted to present a *paper* entitled *Towards an mHealth Taxonomy* in Durban.

Innovations

An innovative approach to the management of immunisation records has been developed as part of the Regional Action through Data project as a subcontractor to Broadreach under a USAID grant. The technology allows for the tracking of cross border populations without compromising their identity nor privacy by making use of Near Field Communications (NFC) technologies embedded in a credit card type format that can be read by a smartphone.

Presentations at the TB Adherence workshops on the value of mobile apps as part of the Collaborating Centre strategy.

INTERNATIONAL AND CONTRACTING

This past year Jembi has continued to work and invest in international and contract projects. We have supported local organisations, both NGO and commercial teams, in achieving their health system outcomes, as well as delivering better levels of care. One of Jembi's core values is investing in local capacity, and we have seen this come to life as we've trained teams on some of the open source technologies and hosted governments to learn more about other materials in the health domain. Our projects from the past year include the continued work in the OpenHIE communities, the ongoing work in the Blood Saftey Strengthening Programme, working in innovative new spaces of Civil Registration and Vital Statistics, as well as other contracts.

Blood Safety Strenghtening Programme (BSSP)

According to the World Health Organization (WHO), 83% of the 40 Sub-Saharan African countries who provided them with data in 2006 did not have fully operational quality systems in the blood transfusion service. Despite efforts to address this, efficient and effective quality assurance systems for blood services in Africa is still a problem.

WHO has identified that "National data collection and information management systems to ensure the traceability of donors, donated blood and transfusion recipients is a key intervention needed to strengthen blood safety in Africa". Jembi Health Systems NPC and partners have created the Blood Safety Information System (BSIS) as an open source information system currently being implemented through Jembi's Blood Safety Strengthening Programme (BSSP). BSIS is designed to manage donors and blood safety information from the point of donation, through to testing, storage, transfer and usage in hospitals and clinics.

BSIS is primarily targeted for deployment in resource-limited settings and offers a high level of configurability to allow for the flexibility of requirements across different blood services. BSSP focuses on the validation, implementation, training and ongoing support of the BSIS software in national blood services in resource-limited settings. The BSSP takes a whole systems approach to the development and implementation of BSIS and considers the interconnection between policy, practice and technology and looks at:

- Environment (where will the system be used?)
- Process (how will the system be used?)
- Technology (what hardware/software will be used?)
- Capacity Building (who will use the system?)
- Sustainability (how much will it cost and who will pay?)

BSIS
BLOOD SAFETY INFORMATION SYSTEM

2017/18 KEY ACTIVITIES

In 2017 the Jembi team took BSIS live in two additional blood services; the Southern Area Blood Centre of the National Blood Service of Ghana and the Addis Ababa Blood Centre of the National Blood Bank Service of Ethiopia. As part of these successful implementations the Jembi BSSP team made multiple visits to each country to carry out deployment of software, training and "go live" support. These implementations have been running for 6 to 12 months, and preliminary feedback from staff report positive benefits from the system both for the blood service and the individual.

JEMBI HELPS TO ENSURE THE WORLD'S BLOOD SUPPLY IS SAFE

Through the open-source information system designed by Jembi and partners, blood donors, donated blood and transfusion recipients can now be traced to ensstrengthen blood safety, especially in resource-poor settings.

Local Support and Training

This past year has seen Jembi continue to support long-standing clients, while embarking on an exciting new direction for training. We have continued our association with a local health insurance provider, supporting them in developing and maintaining their back-end electronic health record platform for members' data sets. Jembi has grown in matching the skills we develop from working in the public sector, to be of benefit to our local groups. Jembi also explored the domain of linking the rapidly growing field of wearables (fitness devices such as Fitbits, smartwatches, etc) to health data, and developed a streaming solution to have this data flow from devices through to the health records. Jembi continues to support the health insurance provider under an ongoing SLA.

Jembi has also seen its relationship with Safe Surgery South Africa (SSSA) continue as we've maintained development of the local perioperative shared health record tool for the community. The product is in the final stages of testing and was piloted at the end of May 2018. We are excited by these new developments and by the potential impact on surgery and anaesthesiologists in the country.

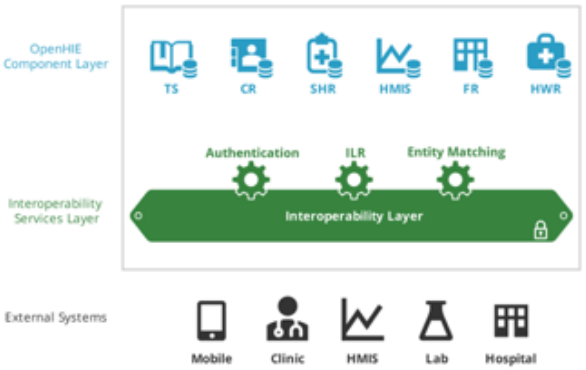
For the past eight years Jembi has been developing an exciting new service offering to host and conduct bespoke training courses for groups interested in different technologies. The success that Jembi has had, and the expansion of the tools available, has fast made them a group that is able to train others on the use of the tools. In the past year Jembi's Daniel Futerman hosted a dedicated Bahmni training session, and Jembi hosted a training session on the CRVS content in conjunction with PLAN international.

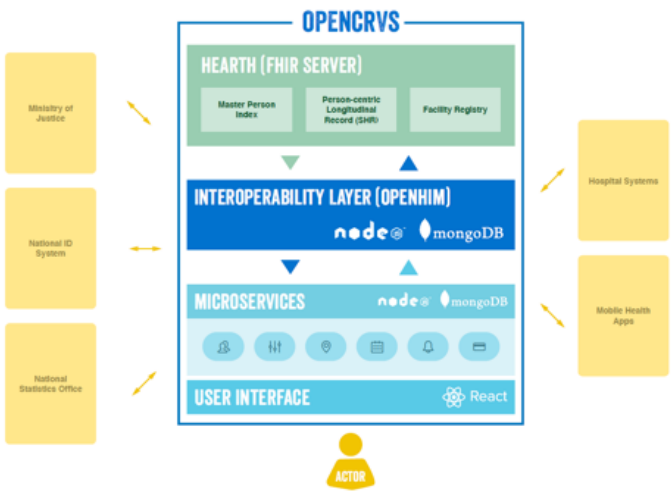
Open Health Information Exchange (OpenHIE)

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).

2017/18 KEY ACTIVITIES

- Under the banner of **Leadership and Advocacy,** Jembi continued to engage and lead in the leadership and architecture communities of OpenHIE.
- Jembi continued work around the broader **Community and Reference tool Curation** where it curates the interoperability layer (IOL) and shared health record (SHR) communities, and maintains the reference tools for each community; the OpenHIM (www.openhim.org) for the IOL component and the OpenSHR and HEARTH for the SHR.
- The HEARTH tool was taken to an IHE Connectathon (www.ihe.net) by the IntraHealth Team where it was put through its paces and came out with a set of successful connection results.
- HEARTH was released publically as Jembi's HL7 FHIR server to serve the role of Shared Health Record.
- Collaboration with international teams in providing **DATIM Support** to the DATIM development project that utilises Jembi's OpenHIM tool. Continuing from the past year Jembi has been curating the **OpenHIE Implementers Network** and has worked with international communities in Asia to create the Africa-Asia OHIN calls to share information across the two continents.
- Jembi launched the OHIN Afro-Asia calls under the banner of the OpenHIE Implementers Network.
- Continued releases of the OpenHIM software within the year and HEARTH is released to the public.





OPENHIE AND OPENCRVS OPERATING TOGETHER:

OpenCRVS is designed around two of Jembi's products: the OpenHIM, which serves as the interoperability layer, and HEARTH, which serves as the person-centric longitudinal data store and Master Person Index for CRVS.

OPEN CIVIL REGISTRATION AND VITAL STATISTICS SYSTEM (OPENCRVS)

OpenCRVS is a partnership between Plan International, Jembi Health Systems and a number of other collaborators. Plan and Jembi have a history of successful collaboration, including the *CRVS Digitisation Guidebook* [viii], an online resource that provides step-by-step guidance for countries to plan, analyse, design and implement digitised systems and automated processes for CRVS (http://www.crvs-dgb.org).

CRVS registration is critical to providing a legal identity to citizens. More than 100 countries lack the capacity to track major life events such as births, deaths and marriage. Without a birth certificate, you may not be able to go to school, graduate, legally work, drive, access basic health services, open a bank account or travel. Without a death certificate, you cannot ensure your right to inherit property, to access business and financial entitlements, and to claim insurance benefits. Without accurate fact and cause of death data, gathered through civil registration, countries are unable to provide targeted and relevant health initiatives and services.

However, despite the obligations of governments to register all vital events, including birth, death, marriage, divorce and adoption, levels of civil registration across the developing world remain critically low. The digitisation of CRVS systems using modern technologies has the potential to extend registration coverage, simplify administrative processes and share data between systems, all at a lower cost. Many developing countries are making significant investments to digitise their CRVS systems, but there is a lack of affordable and effective CRVS systems in low resource environments. Civil registration and health systems do not typically interoperate.

OpenCRVS is an open source, standards-based and interoperable CRVS system that has the potential to have a significant impact on birth and death registration in low resource settings by increasing the reach and efficiency of CRVS systems, as well as integrating CRVS processes, such as birth registration, with health services, such as immunisation. The possibility of OpenCRVS linkages to the health sector would allow a symbiotic relationship where each service feeds into the other providing timeous, accurate and up-to-date information. Effective civil registration systems not only contribute to the accurate identification of patients for continuity but also form the foundation of a "life record" of all major events in an individual's life.

JEMBI TECHNOLOGY

The technology division consists of cross-functional teams, spanning solution architecture, business, system and data analysis, user interface design and user experience engineering, product management and project management as well as quality assurance and of course, software development. The teams use an agile software development methodology to service the needs of Jembi's clients and develop world-class health information system software.

JEMBI'S TECHNOLOGY TEAM: DEVELOPING WORLD-CLASS HEALTH INFORMATION SYSTEM SOFTWARE

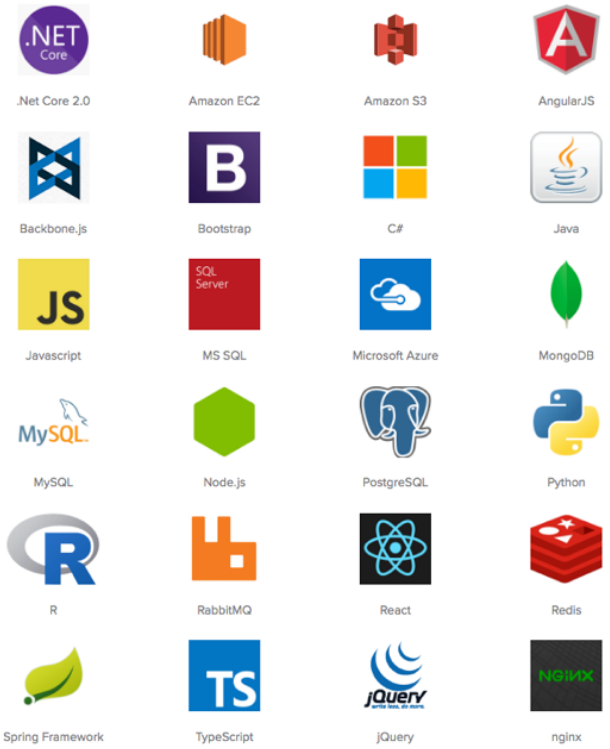
"Mug shots" of some of Jembi's highly skilled members of its cross-functional technology team. They get results, and have fun while they're doing it!

DEVELOPER CENTRAL

TECHNOLOGY AND INNOVATIONS

The Jembi technology team works hand-in-hand with the programmes team to deliver high quality software products and solutions to improve healthcare. The team follows an agile development methodology, with five software teams running two-week development sprints. Twenty full stack software engineers with extensive experience in health information technology work across three main technology stacks – Javascript, Java and Microsoft.net – using a variety of database servers including PostgreSQL, MySQL, MS SQL and MongoDB.

The team has expanded into new areas including blockchain, mobile application development and user experience design and continues to follow the robust development practices of pair programming and review, continuous integration and automated testing.



JEMBI TECHNOLOGY MATRIX

Jembi's technology team works across a variety of platforms and software and continually looks for ways to improve and expand its work and impact.

AHIE MEETING

Members of the AHIE Consortium met during the eHealthAfro Event in Gauteng in October 2017.

MOBILE TECHNOLOGY FRAMEWORK AND APPS

Jembi is working with the South African Department of Health to develop a mobile application framework to integrate centralised health information systems with patient and health worker mobile applications. The framework will allow for the hosting of apps in an NDoH app store, and will allow for secure encrypted registration and clinical data transfer and storage. Messaging protocols such as Message Queuing Telemetry Transport (MQTT) and Advanced Message Queuing Protocol (AMQP) will be used to facilitate low-cost, real-time in-app messaging and instrumentation and applications will be able to use Near Field Communication (NFC) protocols to exchange data.

2018 HACKATHON

Following the first hackathon in 2017, which produced a MomConnect Registration Android application, a group of developers spent a weekend hacking on blue sky innovations. The winning team created a prototype Android app to handle water rationing. The app uses NFC technology to read a recipient's public key from their water ration card, this key is then sent upstream to a server running on the Stellar blockchain. The server can then allocate rations to the recipient and deduct from their allotment. All transactions are recorded on the public blockchain and are completely traceable.

COLLABORATION AND OPEN STANDARDS

The team continues to champion the use of open standards such as Health Level 7 (HL7), especially Fast Health Interoperability Resources (FHIR), an emerging standard that is being widely adopted by the public and private health sector. The team attends weekly open source community meetings supporting the development of open source tools and architectures such as the Open Medical Record System (OpenMRS) and the Bahmni distribution of this software, as well as Open Health Information Exchange (OpenHIE) calls.

BROWN BAGS AND MEETUPS

Over the past year, Jembi has hosted and attended a number of technology MeetUps, including Deep South Devs, the Cape Town Java User Group and the Google Developers MeetUp.

Each week, the team gets together for a lunchtime brown bag session where some aspect of technology or public health is presented. Topics covered have included 'Health of the South African Public Health System', 'Vaccines and Public Health', 'Google App Scripts', 'The Psychology of Experience' and 'UI Unit Testing with Angular 4'.

Product and Design

2017 saw the creation of the Product Team, led by Lisa George. This multidisciplinary team is made up of product owners and managers, business and system analysts, data analysts, user interface designers and user experience engineers.

The team follow the Principles for Digital Development, ensuring that the users of software are included in design and development of the product, that the solutions are scalable, sustainable and secure, and that the process is collaborative and focuses on strengthening existing environments and the reuse, integration and improvement of existing information systems and application.

PRINCIPLES FOR DIGITAL DEVELOPMENT

Jembi's Product Team follows the principles for digital development to continually deliver the highest possible quality product that matches the user's needs.

Presentations and Research Publications

PRESENTATIONS

2018-02: The Fourth Conference of African Ministers Responsible for Civil Registry Nouakchott, Mauritania / Prof Dr José Leopoldo Nhampossa / Accelerating a coordinated improvement of Civil Registration and Vital Statistics (CRVS) for implementation and monitoring development in Africa: Review of progress and the way forward

2017-12: Global Digital Health Forum Washington DC, USA / Annie Neo Parsons / Digital Health in South Africa: experiences, establishing, implementing and evaluating MomConnect and other digital health initiatives in South Africa

2017-10: First Research for Africa Network (ERFAN) Workshop Pretoria, South Africa / Dr Alessandro Campione and Prof Chris Seebregts / One Health Group discussions

2017-10: eHealthAFRO Pretoria, South Africa / Pierre Dane and Annie Neo Parsons / African Health Information Exchange Use Cases

2017-09: Medinfo 2017 HangZhou, China / Dr Chris Seebregts / Precision Global Public Health Informatics

2017-09: South African National Blood Transfusion Congress Rustenburg, South Africa / Daniel Futerman / Big data in the African context

2017-08: DHIS Experts Academy Oslo, Norway / Ivan Pinto and Prof José Leopoldo Nhampossa / Strengthening Government Information Systems in Mozambique based on DHIS2

2017-07: Civil Registration and Vital Statistics (CRVS) rapid prototyping workshop Leiden, The Netherlands / Dr Chris Seebregts / Development of an OpenCRVS application based on the Open Health Information Exchange pattern

2017-06: THRIVE consortium in Montreux, Switzerland / Dr Chris Seebregts / Mobile tools for maternal, newborn, child and adolescent health in low resource settings

2017-05: Health innovation and research capacity in Africa Durban, South Africa / Dr Chris Seebregts

2017-03: Tanzania Care Delivery Task Force workshop Morogoro, Tanzania / Dr Chris Seebregts and Dr Richard Gakuba / OpenHIE Client Registration Workflow

2017-03: Strengthening Research Capacity in Veterinary Science through the Consolidation of a Collaborative Network Teramo, Italy / Dr Alessandro Campione

PUBLICATIONS

Heekes A, Tiffin N, Dane P, Mutemaringa T, Smith M, Zinyakatira N, Barron P, Seebregts C, Boulle A. Self-enrolment antenatal health promotion data as an adjunct to maternal clinical information systems in the Western Cape Province of South Africa. BMJ Glob Heal. 2018 Apr 24;3(Suppl 2):e000565. Available from: http://gh.bmj.com/lookup/doi/10.1136/bmjgh-2017-000565

Seebregts C, Dane P, Parsons AN, Fogwill T, Rogers D, Bekker M, et al. Designing for scale: optimising the health information system architecture for mobile maternal health messaging in South Africa (MomConnect). BMJ Glob Heal. 2018 Apr 24;3(Suppl 2):e000563. Available from: http://gh.bmj.com/lookup/doi/10.1136/bmjgh-2017-000563

LeFevre AE, Dane P, Copley CJ, Pienaar C, Parsons AN, Engelhard M, Woods D, Bekker M, Benjamin P, Pillay Y, Barron P, Seebregts CJ, Mohan D. Unpacking the performance of a mobile health information messaging program for mothers (MomConnect) in South Africa: evidence on program reach and messaging exposure. BMJ Glob Heal. 2018 Apr 24;3(Suppl 2):e000583. Available from: http://gh.bmj.com/lookup/doi/10.1136/bmjgh-2017-000583

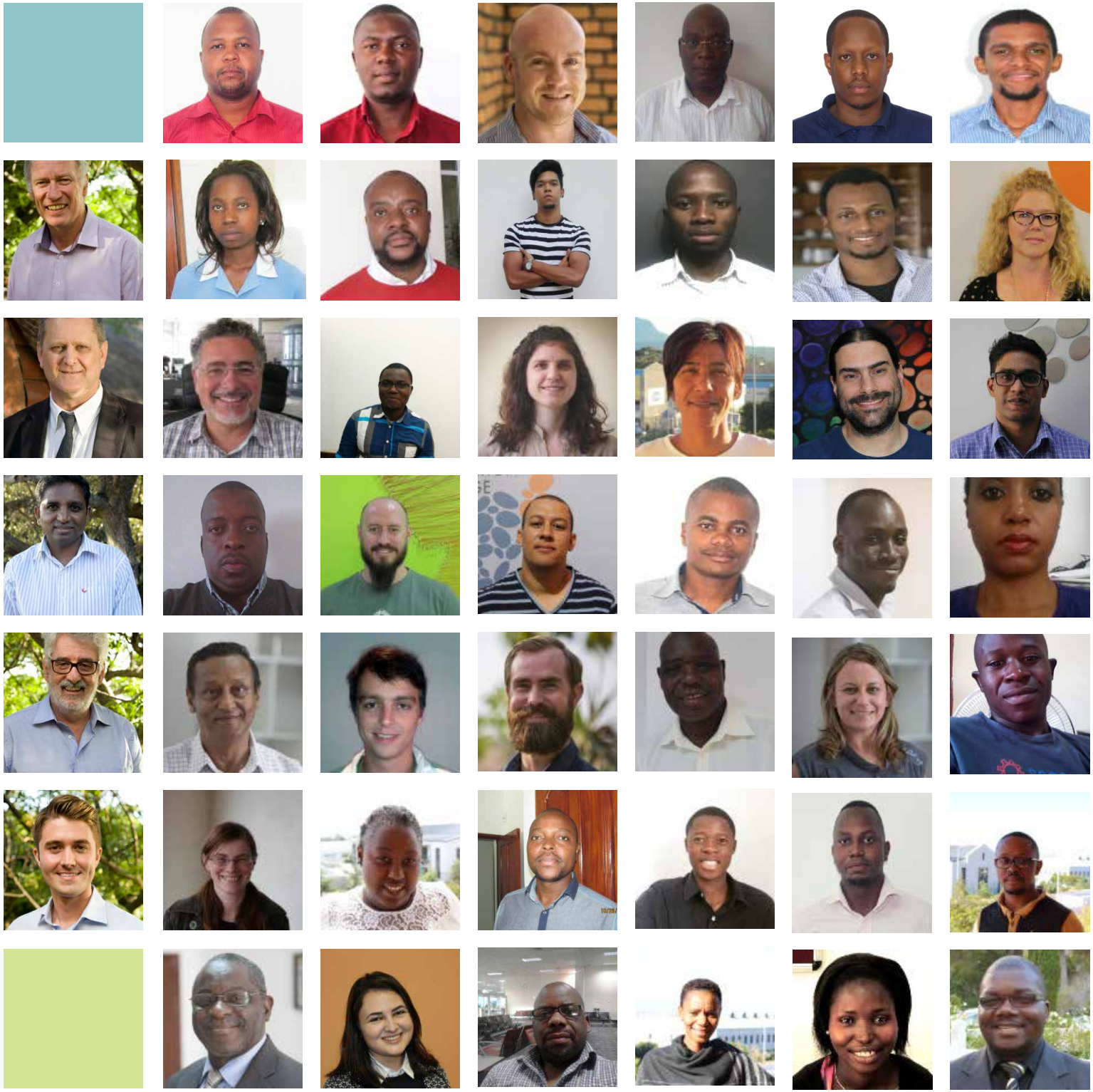
Seebregts CJ, Pillay A, Crichton R, Singh S, Moodley D. Enterprise Architectures for Digital Health. Global Health Informatics: Principles of EHealth and MHealth to Improve Quality of Care (2017). MIT Press

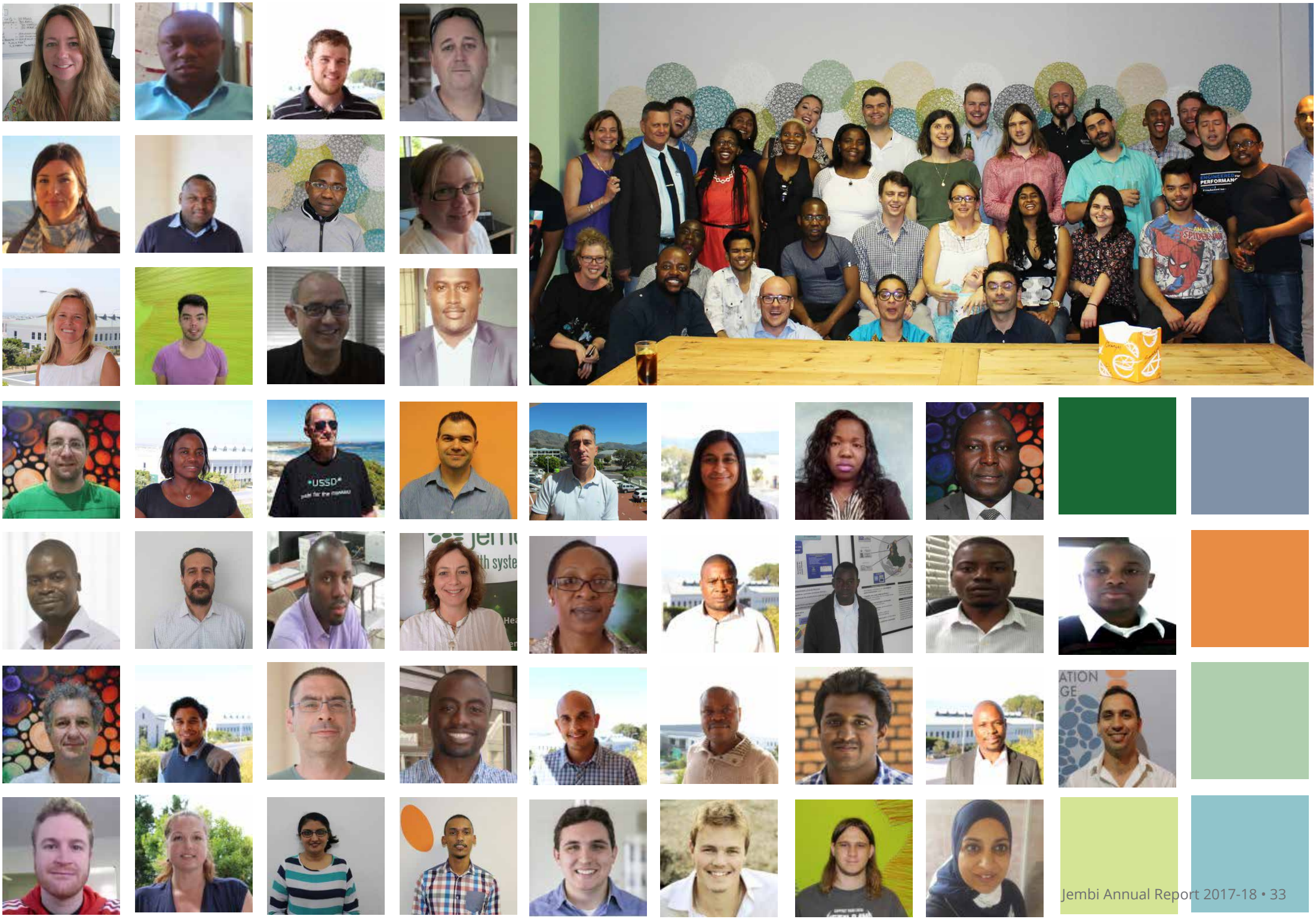
Department of Health 2018. Jembi Health Systems Profile. 3SMedia. South Africa 2018 (http://3smags.co.za/products/view/16)

JEMBI'S TEAM

Jembi's staff continues to grow and thrive – with new members joining the veteran Jembi team.

At the end of the 2018 fiscal year, our staff numbered 88 – with more new faces being added each day! Without these dedicated staff, Jembi wouldn't be able to deliver such high-quality, innovative programming and technology solutions.

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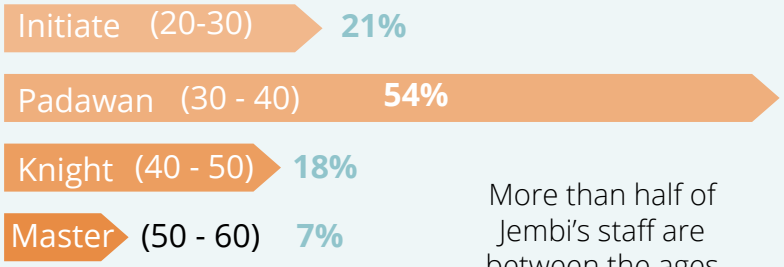
2017-2018

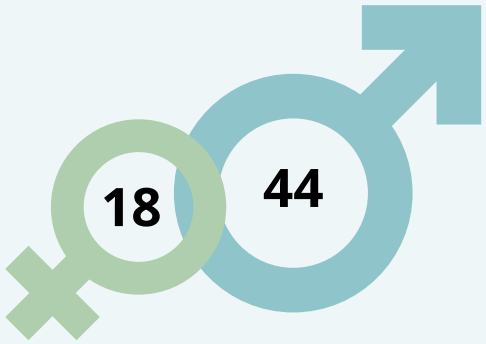
TEAM JEMBI AT A GLANCE

AGE



More than half of Jembi's staff are between the ages of 30 and 40

GENDER



30% of Jembi's staff are women, while 70% are men

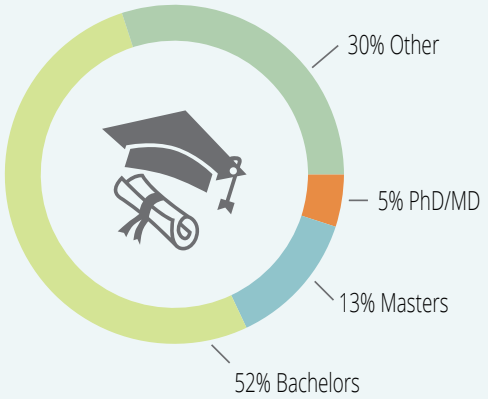
* 61 staff total responded (out of 92)

PETS

It's a menagerie! Jembi staff do love their animals!

HIGHEST DEGREE

Jembi's staff are highly qualified to do their jobs, with 70% holding a bachelors degree or higher.



MARRIAGES

Jembi's staff take the idea of "developing strong partnerships" seriously at home as well as at the office.

8 ENGAGEMENTS & 4 MARRIAGES THIS YEAR

NATIONALITY

Jembi's staff come from 10 different countries.

TRAVEL

Jembi's staff traveled far and wide this year - both for work and play.

KIDS

Jembi's next generation is on its way!

5 BABIES BORN THIS YEAR!

77 KIDS TOTAL

JEMBI FUN

#TRUESTORY

"I have eaten crow meat."

"I did the Iron Man Triathlon five times."

"I once came fourth in the LG South African National Mobile Texting Championship."

"I work on and race cars in my spare time. I also fly racing drones."

"I was on the Homo Naledi excavation caving team."

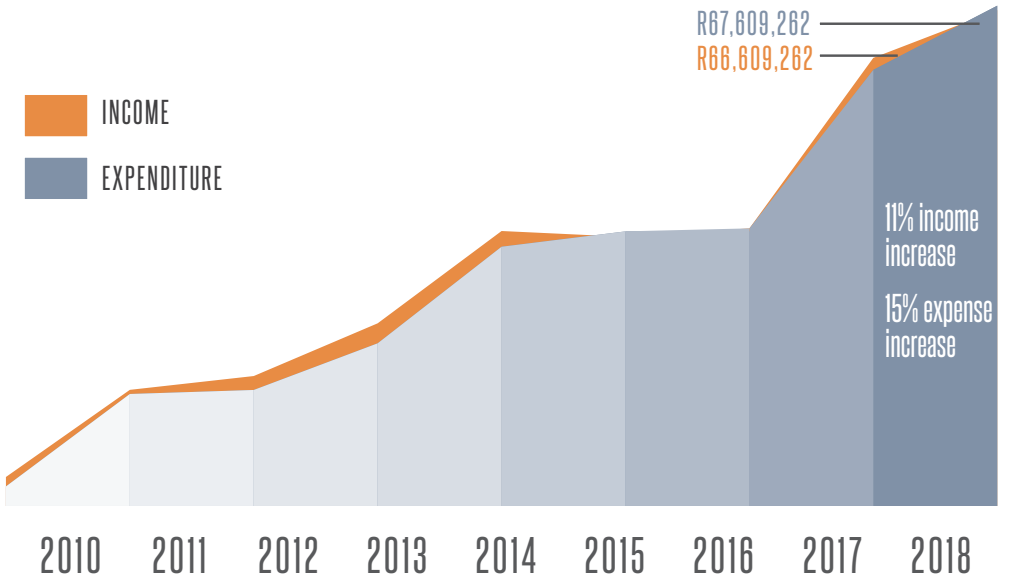
CORPORATE SERVICES

Staff growth, new donors and high-profile partnerships, expanded programming, organisational strengthening – overall, it was another exciting year for Jembi.

GENERAL OPERATIONS OVERVIEW

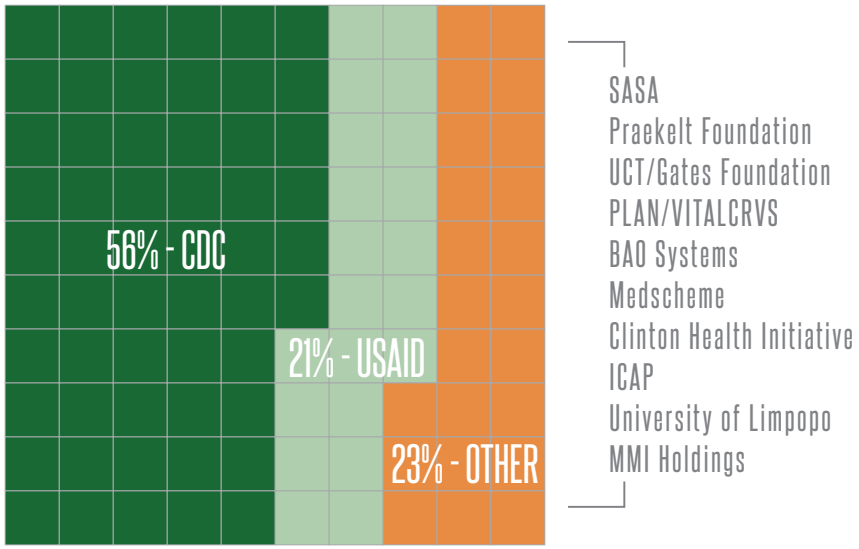
Jembi Health Systems experienced a lower growth rate during the financial year running March 2017 to February 2018 than in prior financial years, which was forecast as the company worked to entrench the new programmes within the organisation. Jembi is experiencing another strong growth curve in the year starting April 2018, with a large upscale commencing in both our Mozambique and South Africa programmes.

Income rose by 11% to ZAR66.6-million at the end of financial year FY18. Expenditure figures were closely aligned to income over the same period, but rose slightly higher by 15% to ZAR67.2-million. The company reserves saw a decrease of ZAR302,000. This was linked to the work undertaken to strengthen the organisation in South Africa, in order to be able to scale up to meet new opportunities that presented themselves in the new financial year starting April 2018. This has also allowed diversification of funding, which is a key strategic outcome for Jembi as we enter the new financial year cycle.



DONOR LANDSCAPE

Income in this financial year was derived largely from United States government federal grants, which represented 77% of the total income and was split between the Centers for Disease Control (56%) and USAID (21%), both through Prime awards and Sub agreements. The remaining 23% of annual income was derived from other donors, most of whom funded the South African programme. These were a combination of local donors and the international community, with funding coming through philanthropy and foundations. This is an exciting new donor landscape for the organisation.

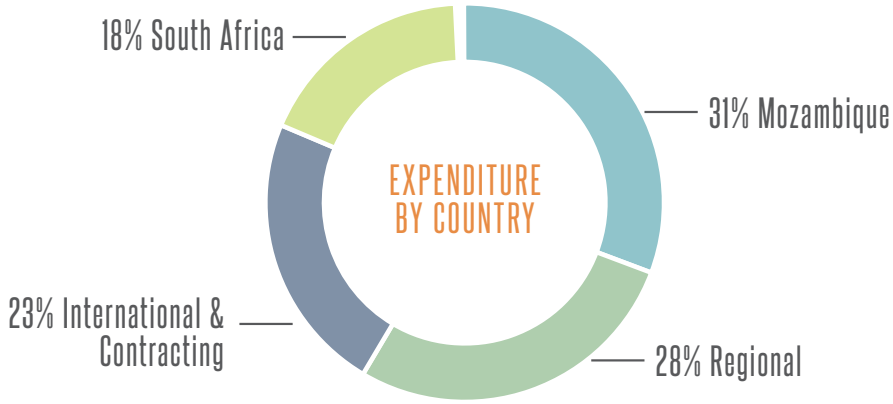


Another marked achievement that came at the end of the financial year was an agreement entered into with the South African Medical Research Council (SAMRC) as a Collaborating Centre, and the accessing of Department of Science and Technology funding through the SAMRC to strengthen the work being undertaken in South Africa in partnership with the National Department of Health.

EXPENDITURES BREAKDOWN

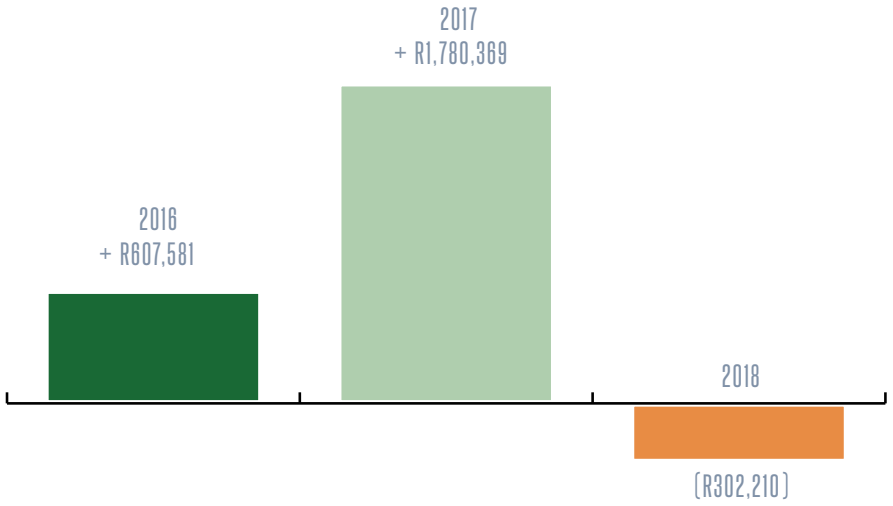
Jembi programmes are grouped into four programme areas for the year ending FY2018: South Africa; International and Contracting; Mozambique; and Regional. The Jembi Regional Programme includes projects and activities in Rwanda, Zambia and East Africa, as a sub awardee under the USAID-funded Regional Action through Data (RAD) programme. The International and Contracting programme includes private/public sector projects, as well as the Blood Safety Strengthening Program (BSSP) and the Civil Registration and Vital Statistics Program (CRVS). The expenditure across the four Programme Areas is broken down as: South Africa 18%; International and Contracting 23%; Mozambique 31%; and Regional 28%.

Expenditure figures including capital procurement increased to ZAR67.8-million over the year, with the largest percentage of expenditure linked to staff costs of ZAR50.5-million (74% of total expenditure). Staff continue to excel in the delivery of projects, developing highly specialised health information systems and providing implementation support.



RESERVES AND EXCHANGE MANAGEMENT

At the end of financial years FY16 and FY17, Jembi was able to add funds to its retained earnings after having spent against reserves in the year FY15. This allowed Jembi to utilise retained earnings/reserves in the present year to further its vision of a world in which health systems and information advance global health.



The change in exchange rates of the United States Dollar (Jembi's budgeting currency and main source of income currency) caused a higher level of exchange loss in the financial year running to end February 2018. This was mitigated with prompt action to align budgeting rates to market rates, thereby ensuring that the organisation did not have excess losses. This management of exchange volatility as well as cash flow management from within the Corporate Services Division Team has allowed Jembi to function effectively over the financial year with minimal setbacks or risk to the organisation.

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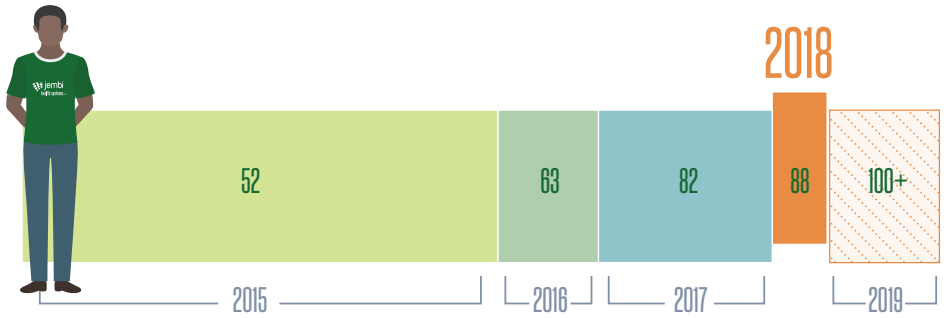
STAFF

At the end of February 2018, staff numbers had increased to 88, with the Mozambique office experiencing the highest increase (18%). Staff figures have increased again in the new financial year, taking the total to more than 100 employees. This represents another year of growth, bringing many exciting changes and opportunities to Jembi globally.



For the first time since its inception the organisation suffered a very sad loss, when one of our longstanding staff members, ICT Manager Quintin Spies, passed away suddenly on 28 November 2017. Quintin is remembered as having a love for the organisation, and was always available and willing to go beyond the call of duty to ensure his function at Jembi was of the highest standard. Albert Einstein once said: "The value of a man should be seen in what he gives, and not in what he is able to receive." Quintin was a man who gave. He gave much to his work, in all the technology advancements he made during his time at Jembi, including the big office move that occurred at the end of 2016. Jembi wishes to recognise the celebration of his life. Here was a life that demanded notice, a life that exemplified brilliance, a life that inspired emulation, a life that burned so that others' paths were lit. Thank you, Quintin, for all you did for Jembi.

In memorium of Quintin Spies

JEMBI'S COLLABORATORS

Jembi

jembi.org info@jembi.org

South Africa

Unit 3B Tokai on Main
382 Main Road
Tokai
Cape Town
South Africa

+27 21 701 0939

Rwanda

14th Floor, KN 2 ST
Nyarugenge
Plot nr. 6418
Kigali
PO Box 6428

+250 78818 0111

Mozambique

Avenida Mao Tse Tung
nr. 789
Bairro da Polana
Maputo
Mozambique

+258 2190 2424
+258 2306 9636
+258 4306 9636

Zambia

F377a/H/3 Kabulonga Rd
Kabulonga
Lusaka
Zambia

+260 21126 9665
+260 97169 5108

Fax
+27 21 701 1979

mOASIS
suporte@moasis.org.mz
www.moasis.org.mz