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PART 2
Case Studies
Open Data’s Impact on Improving Government
CHAPTER 5

Burundi’s Open RBF
Making health spending and performance transparent

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Summary

As part of efforts to improve health outcomes and the functioning of health systems, Burundi was one of the first African countries to introduce results based financing (RBF) in the health care sector. RBF is an instrument that links development financing with pre-determined results. Payment is made only when the agreed-upon results are shown to have been achieved. Open RBF, a platform for opening data related to RBF initiatives, has been central to the Burundian Ministry of Health’s efforts to introduce RBF methodology and more generally strengthen accountability in health care. Open RBF was first introduced in 2014. Early returns were positive and Open RBF entered into a longer-term partnership with the government. Open RBF has also been applied to education and AIDS awareness programs in Burundi.

Context and Background

Problem Focus/Country Context

Burundi is a low-income nation with a population of 10.5 million. It is one of the world’s poorest countries, with development and economic indicators that are among the weakest. Burundi ranks 166th out of 169 countries on
the United Nations 2010 Human Development Index, and the national GDP per capita was under USD 210 in 2015. Health outcomes are poor, with a heavy disease burden characterized by infectious and communicable diseases, primarily HIV/AIDS, malaria and diarrhea. Life expectancy in 2016 was just 50 years (for both men and women). National healthcare expenditures are estimated at 9 percent of GDP. In addition to low public health expenditures, Burundi’s national healthcare system faces significant challenges, including a scarcity of health professionals, poor quality of health services, poor access to essential medicines throughout the country, and a weak health information system.

**Results Based Financing (RBF)**

Results based financing (RBF) is a method that links development financing with pre-determined results. Payment is made only when the agreed-upon results are shown to have been achieved, an approach that seeks to shift the focus from inputs to results. According to one report that outlines the benefits of RBF: “By only paying for results once they have been achieved, we partly avoid the risk that the donor contribution is not used effectively.”

RBF is used across developing countries in cooperation with the private sector, the public sector, and civil society organizations. It is used in a range of sectors, including health care, education, security, and energy. RBF is emerging as a particularly important mechanism in efforts to scale up provision of essential health care services, including child and maternal health care, for example in countries like Cambodia and Rwanda. The OECD has designated

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94 RBF is sometimes also referred to as performance based financing (PBF) or output based aid (OPA). In some contexts, PBF refers specifically to RBF in the health care sector. See Jurien Toonen, et al., Learning Lessons on Implementing Performance Based Financing, from a Multicountry Evaluation, Royal Tropical Institute, Cordaid and WHO, May 2009, http://www.who.int/contracting/PBF.pdf.
RBF as a key tool for achieving WHO Universal Health Coverage goals.\textsuperscript{96} Studies also show that RBF increases health care provider performance, with important differences identified “before and after” the introduction of RBF. RBF was further shown to strongly influence health system development at the operational level in RBF projects in some countries.\textsuperscript{97}

Burundi was one of the first African countries to introduce results based financing (RBF). Second on the African continent only after Rwanda, it began implementing RBF in its health care systems in 2010. In 2015, Burundi also began using RBF in the education sector.\textsuperscript{98}

**Technology and RBF**

The key to a successful RBF program is effective daily management, and information management tools are essential for this. Large amounts of data have to be entered, verified, and validated for RBF programs to function, and that data must then be processed against pre-set criteria to calculate and disperse subsidy payments. Technology plays a vital role in ensuring that this is all done effectively and accurately.

While many RBF programs use Microsoft Excel for this purpose, an increasing number use Open RBF, a customizable financing management tool designed specifically for RBF projects. Because this tool easily makes data open and machine readable, it has the added benefit of making RBF data accessible for public consumption and analysis.

**KEY ACTORS**

**Key Data Providers**

The key data providers are Burundian health service providers who participate in RBF programs that use the Open RBF tool. These service providers generate qualitative and quantitative data relating to the services provided, and the Open RBF tool manages and processes that data and the different stages it passes through. These stages include recording, verification, processing, and calculation and dispersal of payments. Outcomes are also shared in the public domain.


\textsuperscript{98} “RBF IT system for Education sector in Burundi.” OpenRBF, http://www.openrbf.org/project/rbf-it-system-for-education-sector-in-burundi/Vc_9qR8AABUBfDj.
Key Data Users and Intermediaries

Several entities make use of the data. Primarily, participating RBF programs use it to ensure accurate and timely recording, verification, processing, and publication of data, as well as payments dispersal. Also, funding organizations use the data to oversee program progress and to determine allocations. In addition, Burundi’s Ministry of Public Health and the Fight Against AIDS uses the data to coordinate their nation-wide health sector improvement efforts. Medical practitioners and policymakers also use the data. Finally, citizens have access to the data (although, as explained elsewhere in this case study, citizen uptake seems somewhat limited).

The key data intermediaries are Burundi’s Ministry of Public Health and the Fight Against AIDS, which together spearhead Burundi’s national health system improvement efforts. In addition, Cordaid, a Netherlands-based organization that works to create “opportunities for the world’s poorest, most vulnerable and excluded people,” has implemented community health and education sector RBF programs in Burundi using the Open RBF tool.

Key Beneficiaries

Entities working directly and indirectly with RBF programs benefit from the technological functions Open RBF provides. Also, governments, policymakers, funding organizations, students, and citizens benefit from the publicly-available data and data comparisons. Most broadly, all citizens of Burundi benefit from any health and education sector improvements that have been achieved as a result of Open RBF platforms.

Project Description

Initiation

Open RBF’s origins are in Belgium, where Nicolas de Borman, the founder and current CEO of BlueSquare, a company that works to harness technology for the public good, sought a way to promote RBF in developing nations. Borman correctly identified high demand for a tool that would help collect, analyze, and disseminate RBF data. As a result, Borman and a team of five partners created such a tool and named it Open RBF. The tool is deployed and administered around the world by BlueSquare.

RBF pilot projects began in Burundi in 2006 across six provinces, with such pilots covering the entire country by 2010. The Open RBF platform was first

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100 GovLab interview with Antoine Legrand and Elena Ignatova, Program Managers at BlueSquare, August 9, 2016.
delivered in Burundi in 2010, in response to a request from the Burundian government and coinciding with the national-level embrace of results-based financing.\textsuperscript{101} The Burundian Ministry of Health was seeking ways to improve health care functioning at the national level and strengthen accountability mechanisms.\textsuperscript{102,103} Early returns were positive and Open RBF then entered into a longer-term partnership with the government. Open RBF has also been applied to both the health and education sectors in Burundi.\textsuperscript{104,105}

Open RBF in Burundi operates in a similar way to Open RBF around the world. Its broad aims are to improve the openness of data to enable its access by a range of stakeholders in healthcare, thereby promoting the overall RBF goals of efficiency, transparency, accountability, and good governance.\textsuperscript{106} The platform is built as an open-source, web-based solution, using a combination of technologies, including Php, Mysql, Jquery, Bootstrap, Highcharts, and Dompdf. The tool also integrates with Google Maps.\textsuperscript{107}

To access the Open RBF tool, users visit a portal that has both a private and a public interface. The private area contains dashboards that display project data from the field—data that has been recorded and verified by different parties, and only then published on the platform. Data in this area includes information relating to project progress, including quality, quantity, and performance indicators.

The public, front-end interface (image shown below) includes slightly more data than the private interface. The public area allows users to view information at a province or national level, for example, information related to vaccination rates, reproductive health, preventative health, and HIV/AIDS. In the representative image included here, the interface shows that 100 percent of children attending participating clinics were verified as having been fully vaccinated in March 2015, while 80.36 percent were fully vaccinated in November of that year. It also shows that, in September 2015, almost 50

\textsuperscript{101} GovLab interview with Elena Ignatova, Program Manager at BlueSquare, January 19, 2017.


\textsuperscript{105} See: http://www.bluesquare.org/technologies.


\textsuperscript{107} See: http://www.openrbf.org/faq.
percent of patients were screened for TB. Each key indicator is compared with regional and global figures.

All the information contained within the portal (especially the private area) is used to determine the progress of projects, and whether they are eligible for performance-based subsidies. Once subsidies have been calculated and paid, this information is displayed on the public interface, which includes provider performance indicators that allow citizens and policy makers (and anyone else interested) to gauge progress of particular projects or groups and see how public funds are being allocated. One goal of the public interface is to open up data to encourage greater civic ownership and participation.

![Image from http://www.fbpsanteburundi.bi/ which displays health data for Burundi as generated by Open RBF.](image)

**Demand and Data Use**

As mentioned above, demand for Open RBF comes primarily from within RBF programs. Such programs could be managed by non-profit organizations, civil society groups, or government departments. In Burundi, additional demand comes from Burundi’s Ministry of Public Health and the Fight Against AIDS. All these organizations use the data available on the portal not only to track the progress of their own projects, but also of other projects throughout the country. Civil society actors and journalists also draw on Open RBF data to

inform their work, but neither group represents a prime target audience for
the platform.110

Impact

Measuring the impact of open data projects is never easy, especially as some
projects may have indirect effects that are harder to capture. Nonetheless, a
range of indicators suggest that Open RBF has not only had a positive impact
Burundi, offering important lessons for the potentially transformative role
of data in improving healthcare and more generally solving complex public
problems in the developing world.

Improving Health

Overall, as noted, the state of healthcare in Burundi remains poor. But there
are encouraging signs of improvement within RBF programs in particular
that suggest the positive impact of Open RBF. One example can be found in
Cordaid’s work with community health workers in Makamba province, which
has resulted in a significant reduction in cases of severe malaria.111 In addition,
Cordaid’s work in 81 Burundi preschools, which includes 27 local organizations
verifying community education indicators and a network of 12 regulatory
boards, has been found to correlate with improved educational access for
students of all ages, a better gender balance in programs, better teaching
methods, and improved academic performance scores among students.112

These improvements are of course the result of many factors, but people
familiar with the results cite the important role played by Open RBF. For
example, Dr. Etienne Nkeshimana, RBF and health system strengthening
expert in Burundi who currently coordinates a Cordaid community RBF
project, says: “I cannot scientifically say that Open RBF has led to some of the
positive results we see in RBF programs. However, I can say that without Open
RBF, we would not have achieved these positive results.”113

110 GovLab interview with Elena Ignatova, Program Manager at BlueSquare, January 19, 2017.
Pilote FBP Communautaire au Burundi,” December 2015.
112 GovLab interview with Simone Soeters, Cordaid Program Manager and Vincent Kamenyero, Cordaid,
September 22, 2016.
113 GovLab interview with Dr. Etienne Nkeshimana, Cordaid Community RBF Coordinator, and Simone
Soeters, Cordaid Program Manager, September 13, 2016.
Better Project Management and Cost Savings

A significant benefit of Open RBF is its role in improving project management, which in turn enhances the services that use it and introduces greater cost efficiencies. Open RBF achieves better project management by allowing stakeholders to regularly and rigorously follow project results in virtual real-time, including through sophisticated visualizations. Such monitoring not only improves the outcomes of the projects but also leads to financial savings, helping organizations manage scarce development resources more efficiently. As Vincent Kamenyero, Data and Portal Manager at Cordaid, puts it: “The Open RBF portal has allowed for greater transparency in finance management, cost reduction of organizational functioning, and is a considerable time saver for our verifiers.”

Rigorous project management is particularly important in the early or pilot stages of a program, when donors may be monitoring to determine the effectiveness of a method and whether or not to scale up funding.

Open RBF also helps aid agencies and governments monitor projects remotely, a factor that is of great help to foreign funding groups. The benefits of remote project management were apparent during the recent political upheaval in Burundi, when foreign agencies were more comfortable monitoring their projects from the relative safety of their host countries. Similarly, Cordaid’s work with community health workers in the remote Makamba province is significantly facilitated by its ability to follow projects from the national capital of Bujumbura. For instance, if there is a problem with health worker data collection methods on the ground, program experts can quickly identify it and attempt to solve the issue on their dashboards in the capital.

The Inherent Value of Data

Open RBF Burundi is also a good example of the powerful role that data can play in solving public problems in the developing world. Increasingly, it is becoming clear that the data generated by specific RBF programs can be used in other situations as well; the data has inherent value. For example, in its current efforts to expand community health efforts (known as the Kira program), the Ministry of Health is making extensive use of publicly available Open RBF

115 GovLab interview with Antoine Legrand and Elena Ignatova, Program Managers at BlueSquare, August 9, 2016.
116 GovLab interview with Dr. Etienne Nkeshimana, Cordaid Community RBF Coordinator, and Simone Soeters, Cordaid Program Manager, September 13, 2016.
data generated by previous programs. The data includes various qualitative and quantitative costing indicators, as well as information pertaining to patient numbers and vaccine rates that had been used to assess earlier interventions.\textsuperscript{117} In this way, publicly available Open RBF data can serve as an important reference point and guide for developing future programs.

Several donor organizations and student groups similarly rely on publicly available Open RBF data. For example, the World Bank, which will help fund the above-mentioned Kira project, has relied on earlier existing Open RBF healthcare sector data to determine its funding packages. Likewise, students researching Burundi health or other sector outcomes regularly access Open RBF public-facing pages for their research.\textsuperscript{118}

**Empowering Citizens**

As indicated by the example of students, Open RBF data can play a powerful role beyond the development community, empowering citizens at large with information and insights. The Open RBF tool in Burundi provided the public with its first opportunity to review and potentially comment on healthcare (and other) projects across the country. Through community groups and other advocacy channels, citizens can contribute to healthcare planning, verify performance, track government spending, and generally ensure greater accountability. “It puts communities in the driver’s seat,” said Dr. Rose Kamariza, Cordaid Program Officer, Burundi.\textsuperscript{119}

It is of course important to mention that many citizens lack Internet access and thus direct access to the data generated by Open RBF. But organizations like Cordaid play an important role in overcoming such barriers, suggesting the important role of intermediaries in spreading the benefits of open data. For example, Cordaid organizes bi-annual feedback workshops where it shares data with citizens and allows them to engage with RBF findings and Open RBF results.\textsuperscript{120}

\begin{flushright}
\textsuperscript{117} Ibid.
\textsuperscript{118} Ibid.
\textsuperscript{120} GovLab interview with Dr. Etienne Nkeshimana, Cordaid Community RBF Coordinator, and Simone Soeters, Cordaid Program Manager, September 13, 2016.
\end{flushright}
Risks

Burundi’s Open RBF initiative is not intended to make any personally identifiable information accessible to the public. Some level of privacy risk does remain, however, when open data projects are active in sectors like health care. There has been no evidence to date that Open RBF has introduced any privacy issues, but it will be important to maintain vigilance when redacting personal information from data releases or anonymizing datasets going forward.

Lessons Learned

Several important lessons with wider applicability emerge from this particular case study. These can broadly be categorized by considering the key enablers of the project, as well as the most important barriers or challenges to its success.

Enablers

Government support

Burundi’s Ministry of Public Health and the Fight Against AIDS were significant enablers in Open RBF’s success. They incorporated RBF into the government’s national health program, using the Open RBF tool in delivering that program. The ultimate impact and success of that tool has, to a large degree, flowed from the support received by the national government, which helped fund its implementation, adapt it to a range of health sector categories, and generally propagated it throughout the country. In this respect, Open RBF in Burundi is a good example of how strong institutional support and political and administrative buy-in are instrumental to the success of open data projects. Many of the projects discussed in this series lack such support.

It is worth mentioning that the current political climate in Burundi may prove to be a challenge in the months and years ahead. Although this project is both beneficial and useful for the nation, the possibility of further political strife may limit the ability to monitor the efficacy of programs within the health care sector.

International development organizations

International development organizations also played a key enabling role in Open RBF’s success. Cordaid, which adopted the tool for its community health, education and security sector programs, was among the most important
supports. The World Bank has helped too, especially by using and thus validating the usefulness of publicly-available Open RBF data.

**Barriers**

*Regional and Sectoral Specificity*

Open RBF’s use in a variety of countries is testament to technology’s cross-border potential. However, it is also true that the first version of the Open RBF software used in Burundi was not entirely adapted to local conditions and the different needs of various RBF programs. Not all such programs are alike. Each has a different set of pre-determined criteria. Some may receive funds from one donor while others from several donors. 121 This first version of the platform was tweaked and a second unveiled in 2014. This second version allows for the possibility of multi-management funding, includes new data visualizations, and also includes an alert system to allow auditors to update the data. 122

*Technical Expertise*

According to the International Telecommunication Union (ITU), the percentage of Burundian citizens who use the Internet more than tripled from 2014 to 2015. Nonetheless, fewer than 5 percent of Burundians regularly use the Internet—a low rate even by the typical standards of less developed economies. To an extent, the negative consequences can be mitigated by the use of intermediaries who share information with citizens that are not connected. But overall, the country’s poor state of Internet readiness curtails citizens’ and users’ ability to access Open RBF-generated data.

Even among those who are connected to the Internet and generally technically proficient, a lack of data knowledge and expertise often limits the potential of Open RBF projects. Open RBF teams find that many statisticians they work with are not trained to work with data in a manner that Open RBF requires. This complicates and slows training missions. For example, statisticians at the province level in some countries are not always versed with data management beyond the use of Microsoft Excel.

121 Ibid.
Design Flexibility

Building reliable and truly useful software requires adapting it to local conditions and needs. Software is often designed from the top-down, but in order to be useful across a variety of contexts, it must also adapt to new information from the field and from users. Software design is an iterative process. This has proven to be a challenge not only in Burundi, where, as mentioned above, users struggled early on to adapt the software to local conditions, but virtually everywhere where Open RBF has been implemented. For example, program managers Antoine Legrand and Elena Ignatova estimate that up to 80 percent of Open RBF clients come back to the BlueSquare team requesting changes, and as a result the RBF program itself changes over time. Enabling this level of flexibility based on the initial Open RBF design continues to present challenges, but is essential to the success of open data projects—and more generally technical interventions, especially in the developing world.123

Replicability

Open RBF has been replicated repeatedly, within and beyond the healthcare sector—suggesting the value of the model and its tool to a wide variety of stakeholders. Since its inception in the health and education sectors within Burundi, Open RBF has also been used in the security sector.124 And, of course, the dissemination of Open RBF has also extended far beyond Burundi. A total of 15 countries now use Open RBF to facilitate RBF program management, including Benin, Cameroon, DRC, Haiti, Kyrgyzstan, Laos, and Nigeria.125 The cases of DRC and Nigeria are particularly interesting because of their sheer size: 1,000 facilities are included in Nigeria’s program and 2,000 in DRC’s.126 So while Open RBF efforts require some level of customization for specific contexts, the platform and general approach rolled out in Burundi has proven flexible enough to scale geographically and across sectors.

123 GovLab interview with Antoine Legrand and Elena Ignatova, Program Managers at BlueSquare, August 9, 2016.
125 GovLab interview with Antoine Legrand and Elena Ignatova, Program Managers at BlueSquare, August 9, 2016.
126 Ibid.
Looking Forward

The organizers of Open RBF are working on several initiatives to improve their software and programs across implementation areas.

Mobile Platform Updates

Expanding functionalities and improving the responsiveness of the mobile elements of Open RBF are clear focus areas going forward. For health care implementations of Open RBF, like in Burundi, BlueSquare is testing a new patient feedback mechanism to collect information directly from those receiving health care. Additionally, a mobile data collection tool was introduced in July 2015 to allow for data to be uploaded onto the Open RBF platform. Developed by BlueSquare specifically for RBF efforts to improve Burundi’s education system, the tool was designed to improve data collection and verification. It includes a simple interface and allows for data storage until the tool is connected to the internet and data can be uploaded to the system. The tool saves time for data verifiers and enhances the quality of data collected.127 Both cell phones and tablets are being tested, keeping cost requirements in mind.

A More Stable, User Friendly Platform

Open RBF working to solve connectivity issues by establishing interoperability between information systems. The goal here is to better correlate collected and validated data analysis which in turn will enable better and more complete reading of the performance of each RBF approach.128 Teams are working to improve interoperability layers between support tools using DHIS2 systems and integrating them with Open RBF.129

Open RBF is also taking steps to improve data visualization on their dashboards. They aim to improve the way that results are displayed to make the platform more user friendly, especially at a glance.

128 Alice Irakoze, “Un portail OpenRBF pour le FBP communautaire à Makamba, Burundi : des données vérifiées, une gestion et un suivi budgétaire transparents!” BlueSquare.org, https://medium.com/@BlueSquare.org/un-portail-openrbf-pour-le-fbp-communautaire-%C3%A9l%C3%A9gale-des-donn%C3%A9es-v%C3%A9rif%C3%99es-une-f419cb666ebc#.akspjkv9h.
Integrations and Plug-Ins

Finally, the next stage of Open RBF will feature a number of new plug-ins and integrations to bring new functionalities to the platform, and to better connect it with other platforms users are likely to frequent. Likely the most important new integration will be improved geolocation capabilities and mapping features. Organizers are also pushing forward more social media integration, with Facebook and Twitter functionalities representing first priorities. Beyond the specific integrations under development, the plug-in and integration focus exhibited by Open RBF makes clear that a key part of the plan for evolving the platform over time involves finding ways to bring existing platform features to bear for Open RBF users.

Conclusion

The results-based financing approach is growing in momentum, especially across developing countries. The rapid expansion and scaling of the Open RBF platform shows how quickly successful open data projects can be replicated across regions and sectors when a clear value proposition can be articulated and early positive impacts can be demonstrated. Perhaps even more importantly, the Open RBF platform itself is helping to make it easier for governments to quickly roll out open data-driven RBF efforts, with the key out-of-the-box features and functionalities ready to implement once a clear problem area is identified and political will and buy-in is present.