

RWANDA

case study



Good data exchange can confer an array of benefits, from improving the operational efficiency of governments and driving economic growth, to enabling access to essential services for people and building trust.

The factors that make up good data exchange are relatively well established and include effective laws and regulations, technology architecture, and accountability and oversight mechanisms. Far less research has been conducted on how these factors function in the real world as governments navigate their unique contexts to build, implement, and ensure buy-in and usage of their national data exchange efforts.

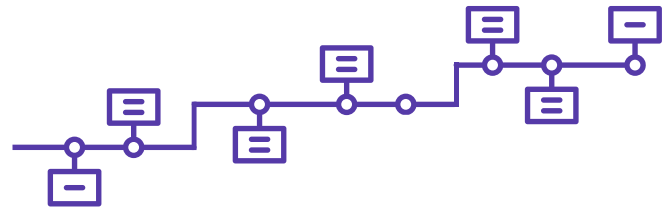
We know that there is no one-size-fits-all approach to national data exchange systems. Each country's progression and timeline are unique, and the process is seldom linear. Their trajectory is greatly influenced by the motivating drivers for establishing national data exchange systems and the methods by which they go about doing so.

The Digital Impact Alliance conducted research into these unique drivers and considerations to inform a greater understanding of how integrated national data exchange systems are being developed, and the ensuing implications for governments, the private sector, and people.¹

This case study surfaces:

- Essential insights and learnings for policymakers and government technology leaders as they undertake their own journeys to implement integrated national data exchange systems.
- Practical recommendations for funders and policymakers as they consider where and how to make strategic investments to support countries with their integrated national data exchange efforts, and beyond.

PROGRESSION AND TIMELINE



Across Africa, Rwanda is considered a pioneer in developing National ID systems. In the late 2000s, the government developed a modern ID system and began issuing national ID cards in 2008. At the same time, the technology sector was growing rapidly while the economy was booming. This set the country on a robust digitalization pathway, which led to the creation of Rwanda's public-facing data exchange system, Irembo.

Launched in 2015, the government's motivation to create Irembo was largely driven by the desire to improve data access and management across the government, as well as improve services delivery.

Irembo, the Kinyarwanda word for 'gateway' or 'door,' was designed as a citizen e-portal to access public services. It is available as a website, mobile app, and USSD for feature phones. Unlike many digital government initiatives in Africa, Irembo is a public-private partnership and is run as a corporation.

Its day-to-day operations are separate from government; however, they do hold a significant stake in the company

Today, Irembo helps the government manage digital workflows and platforms for service delivery, payments, and operations. Over 100 services are available across 20 government institutions, from family and social affairs to immigration, emigration, identification, land, health, and education.

According to the government, the platform has processed over 25 million applications worth \$300 million, eliminating paperwork and saving more than 100 million working hours. Additionally, they report that 45% of Irembo's users pay for services online, collecting over Rwf 350 billion for the government in revenue. The benefits for citizens are also clear with a reported reduction in service delivery from 5 days to 24 hours. Finally, in an effort to increase inclusion, over 7,000 physical agents across the country provide access to people living in rural areas.

KEY MILESTONES

National ID system

One of the early milestones and precursors to Irembo was the development of a strong National Identity registration system spearheaded by the National ID Agency, NIDA. Rwanda built its modern ID system in the late 2000s with the enactment of a law governing the registration of the population². The national ID number is now key to accessing services and transactions digitally. Today, nearly every Rwandan has a National Identification card.

Digital transformation

Irembo's success can largely be attributed to Rwanda's progressive and forward-looking policies supporting national digital transformation. In the early 2000s, the government established 'Vision 2020' – an economic blueprint aiming to achieve middle-income country status within 20 years.

Vision 2020 was followed by the first Economic Development and Poverty Reduction Strategy (2007-2012) and later by version two (2013-2018), both of which acknowledged ICT as a critical driver of socio-economic growth and development. Alongside these key development strategies were ICT-centric approaches, such as the National Information and Communications Infrastructure Plans (NICI).³

NICI 1 (2000 -2005) focused on putting in place foundational legal and regulatory frameworks to allow the liberalization of the telecommunication sector and attract private sector investments. NICI 2 (2006-2010) aimed to accelerate infrastructure rollout and increase coverage of telecommunication networks, license more operators, and implement the National Fiber Optic Backbone. Finally, NICI 3 (2011-2015) set out to extend the benefits of increased connectivity to people through the transformation of services from governments to businesses and citizens. The NICI efforts targeted five key domains: skills development, cyber security, community development, e-government, and private sector development. It was during this time that Irembo, initially called Rwanda Online, was launched.

Finally, in 2015, the Smart Rwanda Masterplan 2020 was launched in 2015. The document outlined a long-term strategy to transform the country into a digital economy and society – aiming to combine previous efforts and realize a fully-fledged knowledge-based economy.

Rwandan-German partnership

Another key milestone on Rwanda's data exchange journey was the collaboration with the German government. Together, they established the Digital Transformation Center³ to strengthen the capacity of public and private actors for increased service delivery in the context of inclusive digital transformation. This Rwandan-German initiative was aimed at developing impact-driven digital solutions in Africa, providing advisory services, and training for government institutions and local technology companies. The partnership hoped to create a modern space to boost creativity and collaboration.

KEY MILESTONES

National ID system



Digital transformation



Rwandan-German partnership



IMPLEMENTATION OF GOOD NATIONAL DATA EXCHANGE SYSTEMS



LAWS AND REGULATIONS

Power is centralized in Rwanda, and while nearly all ministries, departments, and agencies have integrated their systems with Irembo, not all have done so voluntarily. Force has been used where compliance was low.

Typically, when the government establishes a policy or legislation in Rwanda, the expectation is that every ministry, department, and agency will comply. Rwanda has made it mandatory for all ministries, departments, and agencies to conduct public business online as much as possible. For example, the government set a deadline for registering sim cards. When the deadline passed for registration, millions of sim cards were immediately cancelled at midnight.

At the same time, many ministries, departments, and agencies were interested in having their services on Irembo as they saw the clear benefits, such as improved efficiency.

Rwanda Data Protection Law

In the late 2000s, the government prepared to draft a National Data Protection and Privacy Law. This Law – Rwanda's first single and comprehensive legal instrument regulating privacy and data protection. It promised to touch every aspect of Rwanda's digital economy, with its impact reaching every business and citizen across the country. To achieve such a huge promise, buy-in from multiple sectors was critical.

However, inclusive policymaking was not a strength of the government. In fact, much of Rwanda's economic success has been due to the current government's centralized

policymaking approach. This contrasted with the multi-sector consensus needed for a successful data protection policy. And, doubts and mistrust among private sector and civil society stakeholders ran high at the time. In fact, the Rwandan government Freedom House rating on government trust scored a meager 23 out of 100.

Realizing this, the government decided to take a non-traditional approach to developing the policy. In 2020, the government engaged the World Economic Forum's (WEF) Center for the 4th Industrial Revolution to play a bridge building role to the innovation and entrepreneurship ecosystem to inform the digital policy making processes. In turn, WEF created a Kigali-based Centre for the Fourth Industrial Revolution (C4IR). Part of a network of 19 centers globally, C4IR Rwanda's first task was to ensure the draft data protection law reflected the input of business and civil society stakeholders before being moved to Parliament for passage. Over many months, the C4IR team held several private and public consultations and open fora for debate. The team drew on a highly organized business sector by requesting participation from the Private Sector Federation.

The result was the passage, in 2021, of Rwanda's Personal Data Protection and Privacy Law, in collaboration with the Ministry of ICT & Innovation, the National Cyber Security Authority (NCSA), and other key stakeholders. This Law designated NCSA as the supervisory authority in Rwanda.

In August 2023, Irembo received accreditation from the National Cyber Security Authority's Data Protection and Privacy Office as a Data Controller and Data Processor, in accordance with the Personal Data Protection and Privacy Law. The Law defines sensitive personal data as "information revealing a person's race, health status, criminal records, medical records, social origin, religious or philosophical beliefs, political opinion, genetic or biometric information, sexual life or family details." Additionally, the Rwandan constitution has a provision on data privacy, while Article 23 of the Personal Data Protection and Privacy Law says that the citizens of Rwanda are guaranteed the right to privacy as their fundamental right.

Irembo also has an extensive Data Privacy Policy that describes how they use and protect the personal identifiable information that is collected from people using the platform. The policy states: "As a general rule, we do not collect personal data about you when you visit Irembo web, unless you choose to provide such information to us. Submitting your personal data through our website is voluntary. By doing so, you are giving us your permission to use the information for the services you requested for. We collect personal data to provide you with the services you have requested, including services from third party providers. We may share the above information with

Government Institutions, Ministries and Agencies in the performance of their official duties and/or providing you the services you requested for.”

However, some critics have expressed concern that Irembo’s approach may put some users’ data at risk.

Cross Border Data Transfers

The Personal Data Protection and Privacy Law also covers cross border data movements, as stated: “Personal data storage outside Rwanda is permitted only if the data controller or the data processor holds a valid registration certificate authorizing him or her to store personal data outside Rwanda. The supervisory authority issues such a certificate.” In addition, the Law provides that cross-border data transfers are permitted under one of the following circumstances:

- Authorization from the supervisory authority after providing proof of appropriate safeguards with respect to the protection of personal data.
- Where the data subject has provided his/her consent.
- Where a transfer is necessary for the performance of a contract, public interest grounds, the exercise of a legal claim, protection of vital interests of the data subject or of another person, legitimate interests of the controller, or for the performance of international instruments ratified by Rwanda.

TECHNOLOGY ARCHITECTURE

Irembo has three offerings in its technology stack specifically designed to be used by citizens:

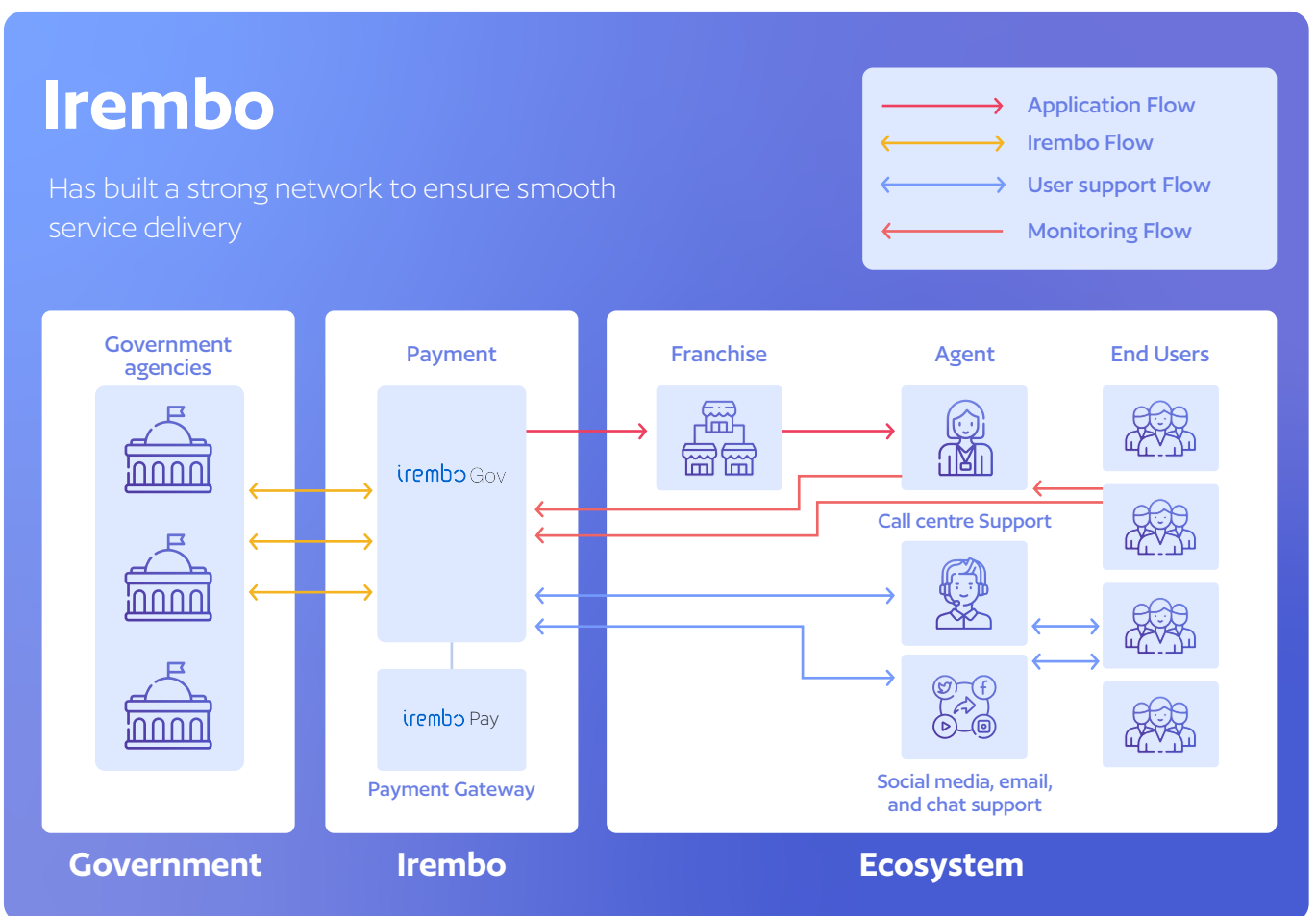
- IremboGov – the full suite of Irembo products and services.
- IremboPay – a seamless payments API and settlement platform.
- Customised IremboGov – this has just the payment, frontend, and support.

The full suite of Irembo products and services that it offers to ministries, departments, and agencies are:

- Partners’ management
- Product design

- Software development
- Infrastructure development
- Payment
- Support and success

In many cases, Irembo relies on the technology infrastructure of the ministry, department, or agency for delivering a service seamlessly. This pushes them to extensively work with the ministries, departments, and agencies to improve processes and delivery times. Additionally, Irembo has put in place complex data processes and flows across services, as can be seen in the illustration below.



For example, their payment gateway enables flexible payments, but also increases reputational risk. When a specific ministry, department, or agency payment system does not work in real-time, citizens perceive a problem with Irembo. This issue extends to delays in payment settlements, which also reflects badly on Irembo.

Irembo follows a set of design principles that highlight their values and priorities for product development:

- Prioritize the citizen – put people over process.
- Make services simple – reduce the number of steps needed to access a service.
- Ask-once policy – streamline all government ministries, departments, and agencies to ask for any data from the citizen only once.
- Open data – give citizens ownership of their data.
- Strengthen data – securing and protecting data against malicious actors.

Finally, to enhance inclusion, Irembo has three access points for its services: a website, USSD support for feature phones, and their physical agent network.

ROBUST AND RESOURCED INSTITUTIONS

Irembo's success can be attributed to a strong National Identity registration system spearheaded by the National ID Agency, NIDA. This was achieved by other related government regulatory actions, such as requiring that everyone with a mobile phone register their sim card. Because an individual needs an ID to register a sim card, coverage is nearly 100%. Therefore, on platforms like Irembo, phone numbers are used as the default login to access the system.

NIDA's relationship with all the other ministries, departments, and agencies has meant strong linkages exist between their systems and the National ID database, which allows these systems to easily integrate into the Irembo service portal. Today, over 50 ministries, departments, and agencies have an API integration with the National ID database, which also makes compliance easier.

Irembo benefited from some prior smaller scale efforts at data exchange at a sectoral level. Some institutions were already exchanging digital information prior to Irembo. For example, the Credit Reference Bureau (CRB) where banks shared loans data had thriving data-sharing practices and systems.

There are a variety of options for users to pay for services, including credit, debit, and mobile money. Mobile money is the most-used method of payment for the services offered on the platform, according to the country's Ministry of ICT. Irembo creates a

mutual benefit for both the platform and the mobile money industry because, by paying with mobile money, users increase adoption and use of Irembo's services, as well as stimulate business for mobile money subscriptions.

CAPACITY BUILDING AND SOCIETAL ENGAGEMENT

In Rwanda, 82% of the population - 14 million people – live in rural areas. This creates a challenge for citizens in remote villages to access critical public services that tend to be centrally located in urban centers, such as Kigali. For some services, people historically had to travel for hours or days to get to government offices. To address these access issues, the Ministry of Local Government partnered with Irembo. Today, this ministry remains Irembo's foremost key government partner. Most interactions on the platform are rural dwellers who face challenges travelling to the nearest service access point.

Popular local government services such as Marriage, Birth and Single Certificates account for over 20% of all applications on IremboGov. Of the 3,000 government officers that log in daily to IremboGov to serve citizens, 60% are officials of the ministry of local government.

Today, some of the services that required navigating an extensive, complex bureaucratic jigsaw can now be completed in minutes. For example, to change one's legal name in the past would involve travelling to the Ministry of Local Government in Kigali and navigating many legal steps. Ministry statistics showed that every month, between 200 and 300 people submitted their applications at the office in Kigali to change their names. This compelled the ministry to collaborate with Irembo to make it possible to change a personal name online. This is now one of the most requested services on the Irembo platform.

For out-of-reach citizens and organizations, Irembo uses a network of 7,000 local agents to act as intermediaries between the platform and the user. They help people login into the platform and provide key information. The 'Irembo Agents Network' is a quasi-association through which the agents provide feedback to Irembo management to improve user experience. Like telecom customer service or bank agents, the agents help people apply for and get services from the platform.

IMPLEMENTATION INSIGHTS

FINANCIAL SUSTAINABILITY

Exploring private sector models, even in partnership with large corporations, can prove successful for governments looking to implement service-oriented data platforms.

Irembo was initially built and operated under a public-private partnership arrangement, partnering with CrimsonLogic, a Singapore-headquartered e-Government services company. However, after a few years, many challenges surfaced with having an offshore technology partner. Irembo now maintains their own inhouse technology team. This is an important part of Irembo's story as the public-private partnership has ensured that its odds of self-sustainability are good.

Today, Irembo holds a 25-year agreement with the government to work with ministries, departments, and agencies to digitize and maintain public services on

its single window platform (it is part way through that agreement). So far, Irembo's model appears sustainable, largely due to the fact that many government services offered on the platform are paid services, and Irembo provides a payment engine and charges a commission on every successful paid application.

Incentivizing services is a priority for Irembo as demand is directly tied to their profit on commissions. At the beginning when the platform still had few users, it was difficult to foresee revenue. However, now with sufficient historical data, the company can forecast its revenue and thus plan accordingly.

This approach offers important takeaways:

- Putting in place the right funding model is essential, not only for long-term sustainability, but also for adoption and continued usage of data exchange efforts.
- Opting for a public-private partnership funding model can offer a clear pathway to financial sustainability, but it also comes with the potential of the traditional concerns around vendor lock-in.

CITIZEN TRUST AND ACCESS

Working through local entrepreneurs can help to build credibility for government systems, but impact will be limited if internet access remains unavailable.

Service delivery is channeled through Irembo's agent network, which notably helps improve inclusion by increasing access. Irembo runs its agent network through a franchisee model with a handful of organizations, such as Rwanda Telecom Network (RTN). These agencies hire agents across the country and train them to help citizens access these services. Many of these agents are college students, local entrepreneurs, and store owners. This acts as a medium of financial diversification and independence for these agents. The agents are given an Irembo branded jacket and an identifier number. They are also given a fixed rate card they must follow for each listed service.

While Irembo's reported successes are impressive, some critics claim the platform is still an elite service, catering to those with means. In particular, some state that Irembo is not sufficiently attuned to the digital divide, which remains a major problem in Rwanda. Despite the agent model, Irembo still faces challenges due to limited internet use, with the estimated number of users at 30% of the population.

Affording internet-enabled devices, such as smartphones and computers, is also still a challenge in a country where nearly 50% of the population is still multidimensionally poor⁴. To counter these issues, Irembo rolled out an alternative solution – USSD – that can run on basic phones.

This approach offers important takeaways:

- Creating physical access points can improve accessibility, and at the same time, create new opportunities for people.
- Considering and responding to the needs of diverse populations is essential, especially vulnerable, marginalized and / or excluded populations.



PARTICIPATORY POLICYMAKING

Participatory policymaking is possible, even in a centralized decision-making environment like Rwanda.

Policymaking requires tradeoffs, and not every stakeholder will get everything they want in the policymaking process. In a centralized policymaking environment like Rwanda, efforts by the government to implement inclusive approaches may lead to distrust. However, clear and transparent decision-making is essential to developing and implementing trusted policies. By working with a third-party bridge builder like WEF to create its critical National Data Protection and Privacy Law, the government was able to ensure that the final policy was

acceptable to critical stakeholders.

Within the government, however, issues with trust remain. The fear of job loss with the increased use of technology is common. This may be one of the reasons why, despite the huge success of Irembo, only 20% of government services are available on the platform. Ironically though, Irembo has created a large swath of jobs with its deployment of 7,000 agents across the country – an unforeseen but welcomed benefit.

This approach offers important takeaways:

- Gaining longer-term trust and buy-in within the government takes concerted effort, often more than anticipated.
- Leveraging recognized associations as bridge builders to create and foster relationships and engagement can provide strategic value.



CONCLUSION

Irembo offers interesting learnings about how to deploy data ecosystems that provide high quality services to citizens. Through its unique model, which marries a centralized national government with a corporate mechanism, Rwanda has been able to employ the strengths of both the public and private sector through Irembo.

As Irembo evolves, more learnings will undoubtedly emerge about how the initiative can overcome challenges that exist, including lack of buy-in within the government and inadequate internet access across the country.

However, today, the platform serves as an exemplar in the region. To that end, Irembo is actively looking to branch out to the private sector and other governments across the African continent.

To learn more about the recommendations for policymakers and funders based on the wider body of research, [read our insights paper on national data exchange systems](#).



ENDNOTES

1. "Data can drive shared prosperity for governments, businesses, and citizens. Unlocking it requires trusted data exchange." Digital Impact Alliance. (2024).
2. Digital Identify in Rwanda.
3. Digital Transformation Centre
4. World Bank Poverty & Equity Brief.
2023