

## Made in Rwanda

### Establishing a publicly available supplier database for Rwanda



#### **In brief**

- The Rwandan Government is currently implementing a ‘Made in Rwanda’ policy in order to address its trade deficit and drive private sector development. One element of this policy includes creating a publicly available Company Database.
- This policy note considers the international best practice on firm databases to inform the efforts of the Rwandan Government.
- The authors find that making firm sector and contact details publicly available is an effective way of encouraging trade. More advanced options provide details about firm quality information and firm transaction history. This could be implemented using government data only.
- The scheme is likely to work best if it incorporates a large number of firms such that the database is useful for many firms to use, but also institutes a size cut-off to ensure product quality and to allow the database to be evaluated.

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## Introduction

The Rwandan Government has published the Made in Rwanda policy which aims to “address the trade deficit by boosting production of and stimulating sustainable demand for competitive Rwandan value-added products by addressing factors constraining the quality and cost competitiveness”. This is clearly an important policy goal which can drive Rwandan private sector development. This policy brief considers one of the intended interventions in the Made in Rwanda policy. Namely, the publicly available Made in Rwanda Company Database.

This database seeks to make information about firms operating in Rwanda publicly available with the goal of reducing the information constraint between firms. The rationale for the intervention is that with more information on the universe of firms in Rwanda, firms will increase the volume and value of transactions made with other Rwandan firms. This policy brief lays out the key arguments for why this policy is an important idea with the potential for transformational impact if implemented fully. It then discusses how it could be implemented in Rwanda using details from similar projects implemented in other countries and discusses a potential strategy to evaluate its success.

## Part I: Why establish a publicly available company database?

The Made in Rwanda policy makes a strong case for establishing a publicly available company database:

*“Vertical business integration through supply contracts to multi-national firms is perhaps the most effective way to increase domestic quality and supply capacity. The past few years have seen several big anchor firms starting operations in Rwanda that could provide vertical business integration of their supply chains, which in turn will have significant multiplier effect on the domestic economy.... However, there are two major constraints: First, many anchor firms are international and do not have extensive local networks, hence do not know who may supply them. Secondly, their orders are typically large and with detailed technical specifications, meaning that smaller firms with lower process capacity are unable to meet their requirements.” (Made in Rwanda, p.36, 2017)*

The policy argues that better linkages between suppliers and anchor firms can drive performance of the Rwandan economy. This is supported by recent IGC research in Rwanda, which finds that being linked to an exporter can significantly increase supplier productivity and supplier output (Spray, 2017). However, in many sectors firms are using a large proportion of imported inputs – some of which could be produced locally (Agarwal and Spray, 2016).

One explanation for this is that large anchor firms are not able to identify local suppliers either because they are not aware of which firms provide which goods or because they do not have information on the reliability of these suppliers to provide the requisite quality on time. Economic evidence in other contexts has found that these constraints are likely to be quite large (Eaton et al., 2017), and that they are especially binding in developing countries with contract enforcement issues, and no clear way to identify supplier reliability (Startz, 2017).

The existence of information frictions seems plausible in the Rwandan context for three reasons: (1) a large and unobservable variability in the reliability of firms, (2) a lack of contract enforcement mechanisms, and (3) a lack of formal market mechanism linking large (often foreign) firms with small (mostly domestic) firms. A publicly available company database could thus reduce the ‘information constraint’ of firms in identifying and matching with local suppliers. Instead of relying on local informal networks, a public and searchable database of firms would make all Rwandan firms directly identifiable.

Such a company database could also exert several side benefits. First, if inclusion in the database is made contingent on paying taxes, it could encourage firms to formalise. Second, the information contained within the database can also help financial institutions in giving firms loans. Currently, banks in Rwanda do not provide loans to firms without collateral or some form of credit history. By providing information on firms’ transaction and tax history, a bank may be more willing to provide a loan. These benefits are also mentioned in the Made in Rwanda policy.

## **Part II: What is the appropriate design of a company database?**

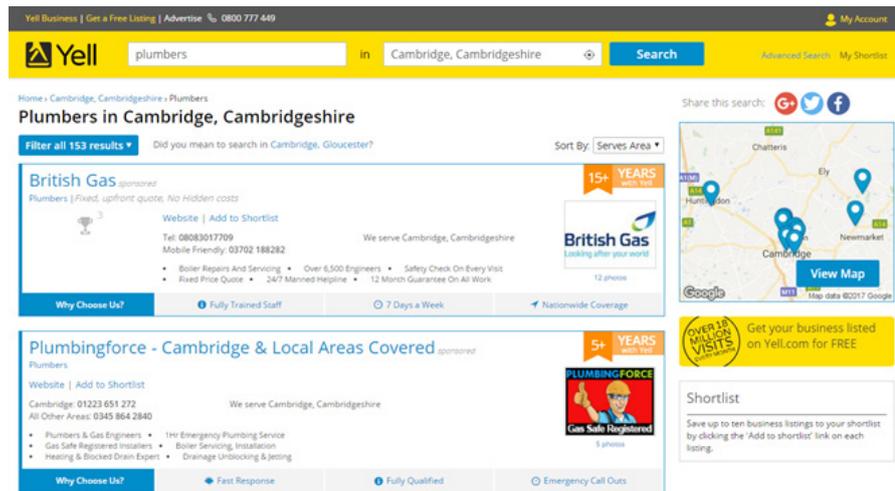
In this section, we first discuss existing company databases in other countries before discussing how Rwanda can take the best of each of these models and implement it themselves.

### **Databases in other countries**

#### **Yellow Pages**

The ‘Yellow Pages’ started in 1883 in the USA as a list of telephone numbers of businesses operating in Wyoming. It is now operating in 75 different countries and has introduced a web portal in addition to a printed phone directory. As shown in Figure 1, the website allows users to search for different businesses in a given area (in this case plumbers in Cambridge, UK). The resulting output provides a list of all businesses who can provide these services, some small details on the business such as products, location, links, and contact information.

Figure 1: Yellow Pages – Plumbers in Cambridge, UK

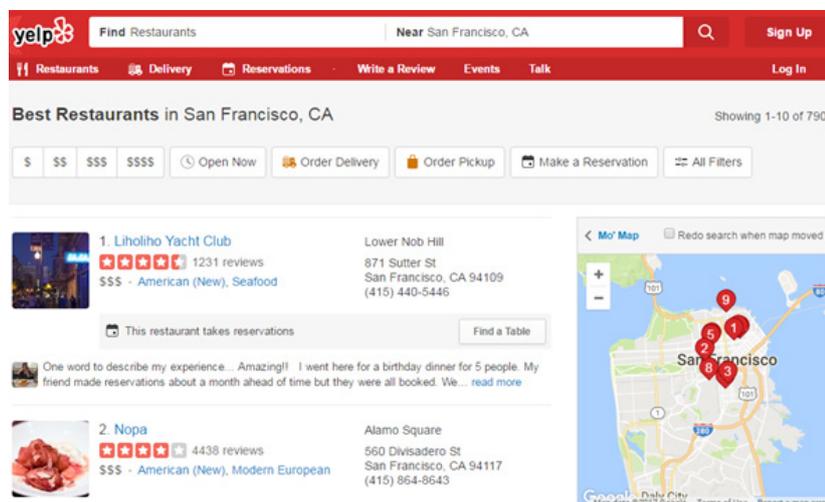


## Yelp

Yelp was founded in 2004 in San Francisco as a technology company which publishes crowd-sourced reviews about local businesses. In 2010, it had more than \$30 million in revenue and published more than 4.5 million reviews<sup>1</sup>.

Like the Yellow Pages, Yelp also allows users to search for different types of businesses in different areas (in Figure 2 restaurants in San Francisco). What Yelp also offers in addition to the Yellow Pages is a detailed user review system. As you can see in Figure 2, restaurants are given a score out of five stars based on users' average reviews. This allows consumers to search for the best suppliers based on their previous quality. Other web portals have also adopted this model such as Trip Advisor, bookings.com, and Amazon.

Figure 2: Yelp - Restaurants in San Francisco, US



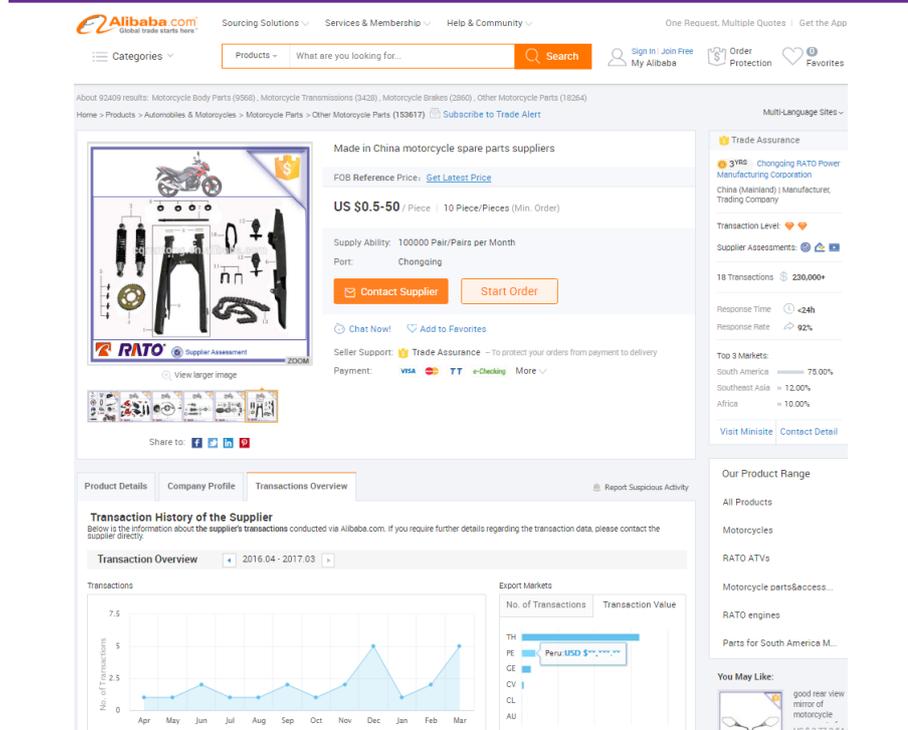
1. Wikipedia <https://en.wikipedia.org/wiki/Yelp>

## Ali Baba

Ali Baba is slightly different to the other websites previously mentioned as its main goal is to reduce international information constraints for firms wishing to obtain manufactured goods primarily in Asia. Ali Baba was established in 1999, it is now the world's largest retailer handling over \$170 billion in sales and valued in 2014 at \$231 billion<sup>2</sup>.

Ali Baba provides substantial detail on the firms in its database. You can see in the top right hand side of Figure 3 that there are extensive details on the company history: in this case the firm has three years as a designated 'gold supplier'<sup>3</sup>, it has 18 transactions over \$230,000, it typically responds in less than 24 hours, and the company has been inspected by third party inspectors. The website also provides more detail on the firm's transaction history as shown at the bottom of the page: this firm has made on average three transactions per month. These transactions have mostly been with Thailand but also Peru and Georgia. Finally, they also show you the rough value of the transactions – in the case of Peru, this is \$10,000-\$99,000. All of this information is there to provide potential customers with details on this firm's previous history and reliability. Together this information will allow firms to make informed decisions on whether to purchase from a given supplier. The website also provides details about the products offered including a price, quantity that can be supplied, and specifications.

**Figure 3: Ali Baba - Motorcycle parts**



2. Wikipedia [https://en.wikipedia.org/wiki/Alibaba\\_Group](https://en.wikipedia.org/wiki/Alibaba_Group)

3. Gold Supplier is a premium membership for suppliers on Alibaba.com. Members are provided with comprehensive ways to promote their products, maximizing product exposure and increasing return-on-investment.

What the Yellow Pages, Yelp, and Ali Baba all have in common is a goal of reducing information constraints between suppliers and potential buyers by providing detailed information in an easy to search portal.

## Database in Rwanda

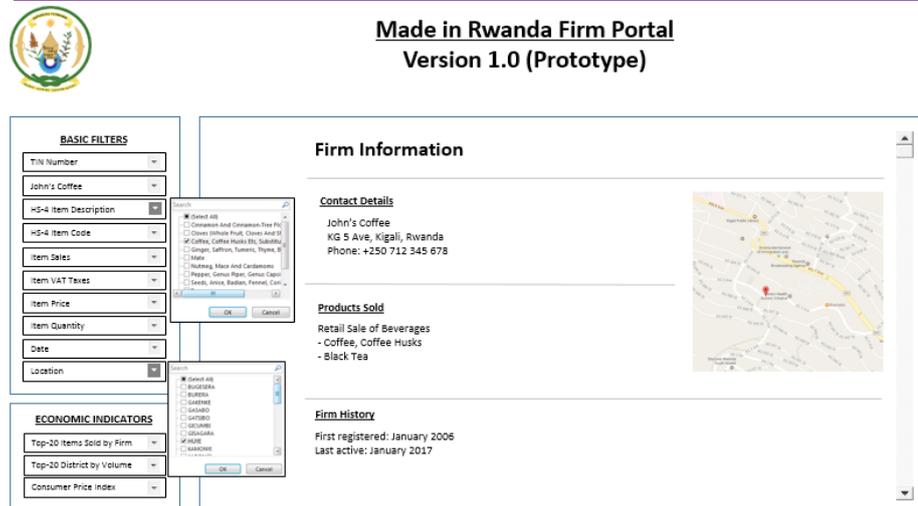
In this section, we consider what Rwanda could learn from these websites. Through the data collected by the Rwanda Development Board (RDB) and the Rwanda Revenue Authority (RRA), there is extensive detail of firms operating in Rwanda. Much of this information could be made public with a view to reducing the information constraint faced by buyers and suppliers.

Based on reviewing data from the RRA, it seems to me the government could roll out a Made in Rwanda portal in three different ways

### 1. Basic

The most straight forward portal would simply have details of a firm's name, sector, location, contact information, and information on when the firm was established and when it was last active. This would mimic the information provided by the Yellow Pages and would help firms identify which potential suppliers are out there and how to get in touch with them. It would not provide details on the reliability or quality of suppliers, instead this would still have to be investigated by potential buyers. The advantage of this is that the RDB could probably do this already using its existing company registry.

Figure 4: Example of Made in Rwanda Company Database (basic)



*What would be the first step to explore this option further?*

To explore this option further the RDB could commission a prototype using existing data and discuss with firms in the sector whether this would be useful.

*What are the outstanding questions that need answering?*

In order to make this possible, the following questions would need to be answered by the government: (1) Can the data be made public? (2) Do we need firms to sign on to be included in the database? (3) How to build the portal and make it operational?

### *Limitations*

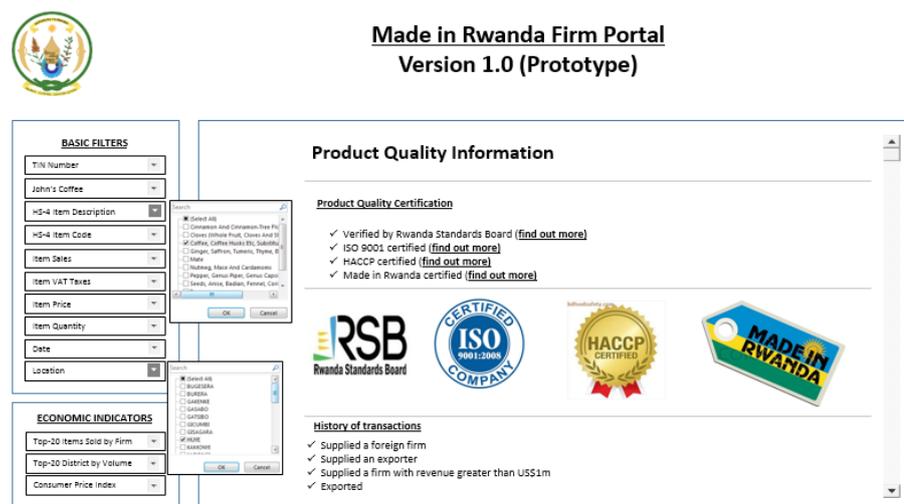
For this type of portal to be helpful, it is important to have specifics on which sectors firm operate in. Broad sectors (e.g., retail) are unlikely to be helpful. However, the current sectors used in the RRA database appear to be both broad and sometimes inaccurate. To resolve this issue, the RDB could consider using information made available by the Electronic Billing Machines (EBMs).

## 2. Basic + firm product quality details (integrating product certification)

A more comprehensive portal would provide all of the information in the basic portal but also some details about the firm's products, size, and product quality. Firms could include information on quality certification such as RSB, ISO, HACCP certification. They could provide details on the number of years they have been active and details on the types of products offered. They could also list the size of the firm and capacity to produce.

This system would provide buyers with some initial details on the quality of goods and help to reduce their information constraint. It may require contacting firms to obtain this information although much of it will be available from the RRA tax database.

**Figure 5: Example of Made in Rwanda Company Database (firm product quality details)**



*What would be the first step to explore this option further?*

To explore this option further, the RDB could commission a prototype using existing data and discuss with firms in the sector whether this would be useful. It would be important to obtain details from the firms on their product certification.

*What are the outstanding questions that need answering?*

How many firms in Rwanda have these certifications? Are there other certifications that could be helpful for firms? Can we make data on firm history publicly available?

*Limitation*

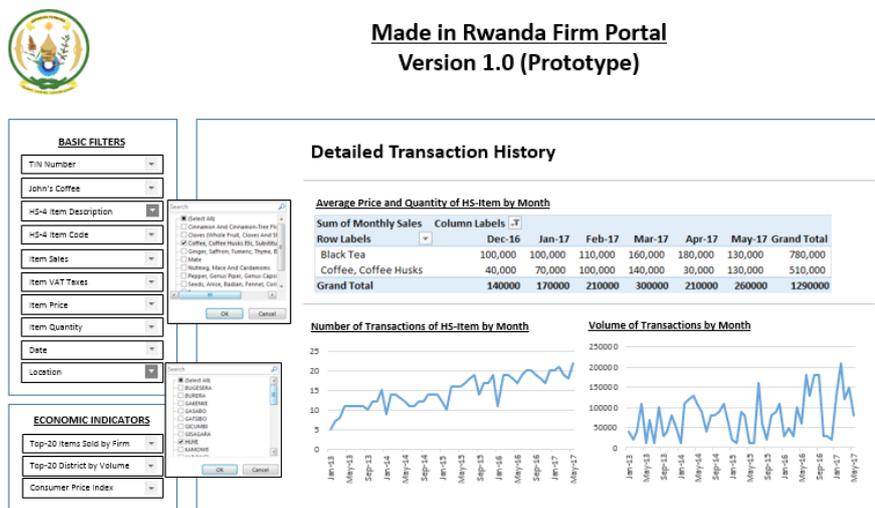
To our knowledge, there is currently no comprehensive database available in Rwanda on product certification information, so this data would need to be obtained by asking firms directly.

**2. Basic + firm reliability details (integrating firm transaction history)**

This portal could mimic the Ali Baba model by providing details on firms’ previous transactions made available through the RRA’s VAT transaction annexes. This could list all trades made by firms to other firms, the value of the transaction, and the good transacted. This information could provide buyers with crucial information about the firm’s previous reliability, their ability to meet big contracts from exporters or foreign firms, and their years of experience.

The obvious advantage of this system is that it would substantially reduce the information constraint to potential buyers by making firm history a publicly available resource. This should then encourage more firms to undertake transactions with firms with a proven track record.

**Figure 6: Example of Made in Rwanda Company Database (firm transaction history)**



*What would be the first step to explore this option further?*

To explore this option further, the RDB could commission a prototype using existing data and discuss with firms in the sector whether this would be useful. It would be important to discuss with the RRA whether this data could be shared with/without firm permission.

*What are the outstanding questions that need answering?*

Can we make these data publicly available with/without firm permission?

*Limitation*

This will only cover formal sector firm transactions.

## **Firms included in the Company Database**

In the final part of this section we consider which firms should be included in the database. Below three options are considered:

### **1. Include a basic list of all registered firms (RRA Taxpayer Registration list)**

This would be the most straight forward strategy and will provide firms with a full list of potential suppliers. This has the advantage of being simple to implement and will not discriminate against any firms.

### **2. Include a list of all RSB ‘certified’ firms**

This would be a much smaller group of firms. The advantage of this would be that the quality of these firms could be guaranteed. The disadvantage of this scheme would be that the set of firms included would be much smaller and so less likely to be used by a large number of firms.

### **3. Include all firms above a cut-off on size**

This option would take the best of both options 1 and 2. It would include a large number of firms, making the database useful for suppliers and encourage a large amount of web traffic. It would also ensure that the dataset only includes high quality firms by ensuring that only larger firms are in the database.

The other advantage of this type of strategy is that it allows the database to be evaluated as discussed in section 5.

## Part III: How to evaluate the Company Database?

When implementing a new project, it is almost always necessary to identify a monitoring and evaluation strategy before beginning. With a well-defined M&E strategy, the government can keep track of how effectively resources are being spent and whether certain elements of a project can be more successful if implemented in slightly different ways. As discussed in the previous section (2.3), to evaluate the Company Database, it may be necessary to carefully control the type of firms who are accepted into the database, and even to offer guided training and introduction of the Company Database to target anchor firms. In this section, we want to take this idea further and explain how the Company Database can best be evaluated using the best practice of modern economic impact evaluations.

### Research questions

An important starting point for evaluating the Company Database would be to hypothesise why we would expect the Company Database to improve firm linkages. We would hypothesise four main ways in which information frictions manifest themselves in Rwanda:

1. Buyers may be unaware of the supplier firms that exist in the market.
2. Buyers may not be able to observe the reliability of suppliers *ex ante* when entering into a contract.
3. Buyers and supplier firms may be unaware of the need or existence of quality standards such as ISO classification, Rwanda Standards Board classification, Hazard Analysis, and Critical Control Points (HACCP).
4. Suppliers may not be able to obtain access to finance in order to meet a contract offered by a buyer because financial intermediaries cannot observe supplier reliability *ex ante*.

Any evaluation of the Company Database could thus seek to test whether such information frictions exist in Rwanda and identify the channels these information frictions follow.

### Experimental design

There would be many different ways in which the experimental design can be set out. In the following section, we provide one approach based on Regression Discontinuity Design (RDD) to observe the impact of firms entering the database. This aligns closely with a Company Database design that includes firms above a specific cut-off point and provides for a rigorous but non-intrusive means to evaluate the effect of the Company Database.

Such an impact evaluation could be conducted in three steps. First, the RDD would have to establish the cut-off in firm size for whether the firm

is included in the database. This size could be made of a composite score of firm employment, sales, and inputs and could vary by sector. The evaluation will then try to establish if firms just above the cut-off point (who are relatively similar to those just below the cut-off point) perform significantly better over time than comparison firms.

To evaluate the mechanism by which being in the supplier database benefits firms, a second step could involve a randomised encouragement design. This may involve three treatment arms:

1. Transaction history: supplier firms will be encouraged to ‘opt-in’ to include their firm’s transaction history based on their tax records within the supplier database. This will include details on the types of buyer firms (buyer sector, buyer exporter, buyer size), the number of transactions, and the number of years they have been operating. This will test mechanism (2) in the above section.
2. Firm quality standards: supplier firms will be informed about the benefits of obtaining RSB, ISO, and HACCP classification and given information about how to obtain them. They will also be given the option to include already obtained classification in the company database. This will test mechanism (3) in the above section.
3. Financial firm information: firms will be given the option to ‘opt-in’ to provide additional tax information to banks for the purpose of accessing financial products. The ‘bank portal’ will give detailed tax information about firms including the firm’s financial history, transaction history, and tax history. This information can provide details to banks about the reliability of firms. This will test mechanism (4) in the above section.

A third step to the evaluation could encourage buyers to use the portal to see if it increases the value and volume of transactions, again using a randomised encouragement design. This would randomly select a group of potential buyers from the tax database and visit these buyers. These buyers would then be shown the benefits of the portal through a short training. The evaluation could also provide some incentives to use the portal. This could either be a financial incentive for using the portal, or a Made in Rwanda certification if you can prove that you have sourced a certain proportion of your goods locally. This element could assess if ‘encouragement’ of portal usage results in any significant effects on the type, value, and volume of local goods used.

## **Data and design**

The majority of the data used in the research could come directly from the RRA’s tax database including Customs receipts, VAT records, PAYE employee data, Electronic Billing Machine data, and the VAT transactions annex. The additional data that may be needed are firm access to finance information. This could be obtained through a short firm survey with firms who receive the randomised encouragement and those in a control group who do not receive the treatment.

The randomised encouragement design could be undertaken in Kigali by visiting establishments identified from the RRA tax database and providing them with information about the additional treatment arms and the option to ‘opt-in’ to sharing their tax information.

## Conclusion

The Made in Rwanda policy sets out a number of important ways to reduce information constraints in order to improve firm linkages. The Company Database is particularly critical in this regard by making information about firms operating in Rwanda publicly available. However, this policy brief shows that there are many different ways to structure such a database, depending on *how much information* is provided on each firm (only the basics, certification information, or even firm transaction data). Another critical question is *which firms* are included in the company database (all registered firms, only accredited firms, or firms above a certain size). These are important decisions that will fundamentally affect the functionality of the database and should thus not be taken lightly. The final section provides an overview of considerations for evaluating the Company Database and provides for a rigorous but non-intrusive means to evaluate the effect of such a programme on firms’ use of local content.

We thus strongly encourage the establishment of a Company Database and believe that this can bring about considerable economic benefits. Through the Rwandan government’s proactive role in fostering linkages between foreign and local firms by addressing information constraints, it can become a leader in stimulating local content management, and offer important lessons for other countries in the region.