



Mobile
Identity

Mobile Birth Registration in Sub-Saharan Africa

A case study of Orange Senegal and Uganda Telecom solutions

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I. Executive Summary

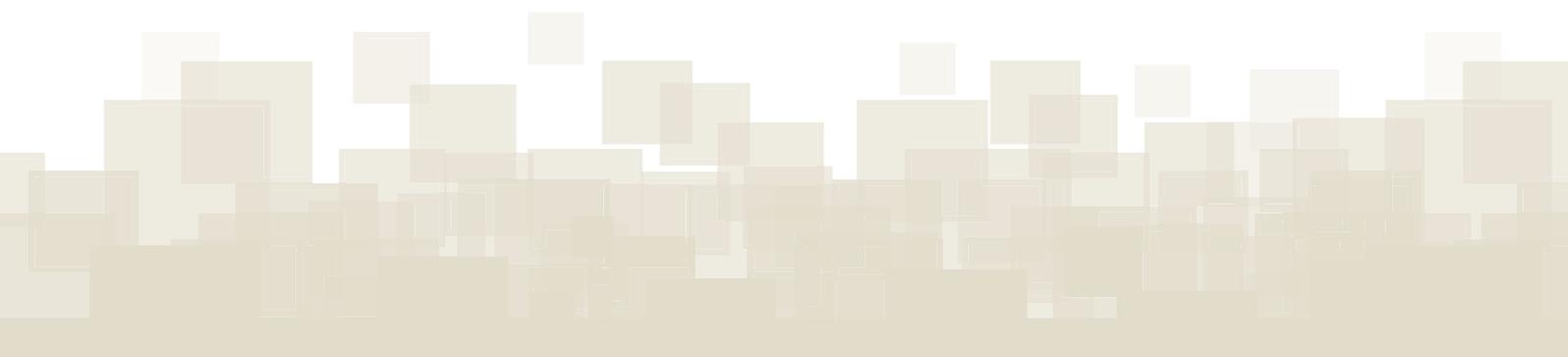
In effectively all countries in the world, proof of identity is an essential prerequisite for gaining access to basic services, and to exercising fundamental human rights. Without a birth certificate, for example, a child may not be able to enrol for school, receive state health care services, claim rights to inheritance or obtain legal protection in courts of law. In the absence of a birth certificate, it is exceptionally difficult and costly for an individual to retrospectively establish their identity and, consequently, to participate as a citizen in their country of birth.

Unfortunately, birth registration rates are stubbornly low in West and Central Africa, with an average of just 39% of newborn children being registered at birth.

One of the main barriers to birth registration is the lack of efficient communication between rural villages and national birth registration offices. Where records are kept at all, they are typically paper based – and are therefore easily lost, damaged or destroyed. Late registration, a common occurrence in many communities, creates additional burdens on both individuals and the state, as inaccuracy of information increases with longer delays in registration. Registering a birth often requires people to travel to their areas of nativity, which is an expensive venture both in terms of time and money. Given current patterns of rural-urban migration, people often end up going to the nearest registration point and giving false information, claiming to have been born in that area.

Mobile technology, due to its growing ubiquity in Sub-Saharan Africa, can help improve this situation. Orange's mobile birth registration solution in Senegal and Uganda Telecom's Mobile VRS platform are two excellent examples of how mobile operators can use existing technology to solve a previously intractable social problem.

Facilitating the issuance of identity documents represents a real opportunity for mobile operators. In the short term, it could represent a revenue opportunity in and of itself, and help develop the use of mobile data in Sub-Saharan Africa, as well as other developing regions of the world. In the longer term, with SIM-registration legislation being enacted in many Sub-Saharan African countries and "Know Your Customer" compliance being compulsory in support of mobile money services, the universal availability of identity documents will likely be of utmost importance to mobile operators, as well as to the customers they serve.



II. Background information: Birth registration in Senegal

A. Registration rate in Senegal and Uganda

Senegal and Uganda both signed the UN Convention on the Rights of the Child, on 31 July 1990. In agreement with this accord, participating states committed to the objective of giving every child the right to be “registered immediately after birth.” In Uganda, this commitment is also included in the Constitution: “The state shall register every birth, marriage and death occurring in Uganda.”¹

But progress towards universal birth registration has been comparatively slow. In 2005, and according to the national DHS (Demographic and Health Surveys), only 55% of children in Senegal and 21% in Uganda were registered at birth.² These figures are similar to those achieved in neighbouring countries: 22% in Tanzania, 31% in the Democratic Republic of Congo, 39% in Guinea-Bissau, 53% in Mali, and 55% in Gambia. However, much higher registration rates were found in other West and Central African countries, such as Rwanda (82%) and the Republic of Congo (81%), illustrating considerable room for improvement despite difficult conditions.



B. Reasons for low registration

1. Existing registration process

In countries where birth registration is a simple process, it can be hard to imagine why a mobile solution for birth registration solution might be needed. But in countries where the rural population lives at a great distance from urban centres, and the state’s public administration infrastructure has a limited physical reach, traditional paper-based birth registration processes can be very difficult to implement.

Historically, birth registration processes in Senegal and Uganda have been the responsibility of the National Registration Services, with the support of local authorities: village chiefs or nominated registration officers have typically been responsible for recording all births taking place in their designated areas. In both countries, the formal declaration of a birth must be completed in short order (three months after the birth in Uganda, one year in Senegal) otherwise families have to go through a “late registration process.”

The effective registration of a child depends on many variables. Historically, paperwork had to move through several bureaucratic stages. In Uganda, it could take several months from a child being registered to the actual receipt of their birth certificate. As the whole procedure was paper-based, there was also a risk of the certificate being lost or destroyed before reaching the child.

Birth Registration Process in Senegal
(source: <http://www.demarches.gouv.sn>)

When to declare a birth?

- From the day of birth to the first birthday of the child
- If the birth is declared after the 45th day following the birth, it is considered a late registration
- Beyond the first anniversary, a request for a judgement authorising registration must be sent to a tribunal

The village chief or the neighbourhood delegate are required to report all births which occurred in the preceding month, within 15 days.

What documents must be provided?

- A delivery certificate or the references of two major witnesses
- The declarant must bring a valid ID and the family record book (if available)

The two major witnesses must come with the declarant and bring a valid ID when the declaration is performed.

What is the cost?

- Registering a birth is free of charge

Where can registration be done?

- In urban areas, parents need to show a certificate of delivery to the local registration office, which can be the town hall or the prefecture

1. Article 18 of the 1995 Constitution of the Republic of Uganda.
2. Percentage of children less than 5 years old who were registered at the moment of the survey, Unicef data (childinfo.org)

- In rural areas, village chiefs record births in a dedicated notebook

What documents must be provided for a late registration?

- A formal request to the president of the departmental tribunal
- A certificate of non-registration to the local registrars
- A delivery certificate (if a midwife witnessed the birth)
- A certified copy of the national ID card of two witnesses
- A receipt for the payment of the CFAF 4,600 fee

Where can late registration be done?

- At the registry of the departmental tribunal where judgement will be made

An on-site audience can be organised in rural areas. In this case, the tribunal comes to the village in order to process birth registrations with the help of the Registration Office agents.

2. Barriers to registration

- **Distance and lack of communication:** Village chiefs and registration agents often have to travel long distances to register the births that have occurred in their assigned areas. This can be costly (if they have to use public transportation), time consuming and impractical. The level of effort required can appear disproportionate, especially as the importance of birth registration is not always well understood.

- **Lack of awareness:** In many cases, the rural population is unaware of the reasons why it is important to register births. Literacy remains low in many rural areas of Sub-Saharan Africa and legal documents are often not clearly understood by citizens. In Senegal, for example, many people believe that they have to pay to register their child, which is untrue. A fee is only required for a copy of the registration certificate.

- **Administrative delays and inefficiency:** According to field research in Senegal³, it is quite common for registration offices to run out of official registration forms. In other cases, offices refuse to register people if they don't pay for the certificate at the same time. Such problems serve to undermine people's willingness to register new-borns.

- **Cost and poverty:** Birth registration is free in Senegal and inexpensive in Uganda (when it is done on time). However, associated travel expenses can be dissuasive, though it is important to note that families often travel much greater distances to inform friends and family of a birth (and incur greater cost). Combined with the time required to complete a registration, the low level of awareness of its importance, and the other financial priorities of families on extremely low incomes, the perception of the cost of registration serves to reduce participation.



C. Social impact of low registration rates

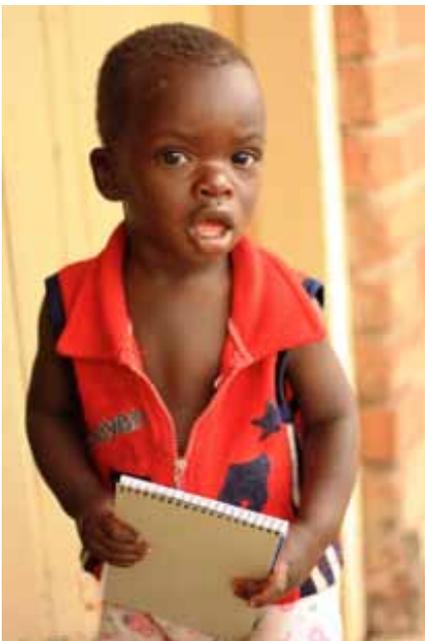
1. Impact on children

The main impact of failure to register a child at birth is increased difficulty for that child in accessing key public services such as health and education. For example, legislation states that children must provide a birth certificate in order to enrol for and attend primary school in Senegal. In the absence of a birth certificate, many children have simply been excluded from the education system, leaving them vulnerable and unable to make their full contribution to society as adults.

Perhaps more acutely, without a birth certificate, it is often difficult for children to access primary healthcare facilities. State-funded vaccination programmes, for example, typically require parents to produce a child's birth certificate. Registration with a general practitioner also requires a birth certificate. In Sub-Saharan Africa, mortality rates amongst children under the age of five are amongst the highest in the world, and many children suffer unnecessary illness and hardship simply because their birth was not effectively recorded and officially registered.

3. <http://www.ememoire.net/consulter/6578-La-communication-dans-la-lutte-contre-la-non-decla.html> and <http://tak.00221.info/demande-CNI>

Later in life, there are many other dramatic consequences for children who are not registered. Children who are unregistered - and therefore unable to prove their age - are much more vulnerable to underage marriage, child labour and underage army enrolment.



2. Impact on the State

Nationwide, lack of registration information is a source of significant challenges for the state. Accurate data on the location and number of births (and deaths) are essential if countries are to determine spending priorities, and to formulate and monitor actions. Distribution of state subsidies, for example, becomes extremely difficult to organise without timely and accurate demographic data.

Unreliable statistics also represent a serious challenge for healthcare providers, especially when it comes to medical services for new mothers and their babies. It is necessary for governments to have accurate population data in order to plan service provision for children and their caregivers. Where this is not the case, both mother and child can be at risk.

More broadly, lack of identity deprives citizens of basic civil rights and duties, including the ability to vote, the ability to own property, and the right to travel (e.g. passport). Clearly, these issues conspire to undermine not only democracy, but also economic development.

3. Impact on service providers (including mobile network operators)

Both public and private service providers can be affected by low levels of birth registration, particularly where proof of identity is required from their customers. Unregistered individuals cannot normally (or easily) gain access to financial services, for example. The ability to arrange a loan – to purchase property or a car, or to start a business, clearly requires an individual to be able to identify themselves formally and officially. An individual who has no birth certificate is often entirely excluded from the financial system, and therefore unable to participate fully in the economy.

Experience shows that customers tend to find ways to avoid this requirement, by borrowing identity documents or asking relatives to buy SIM cards for them. But this only works for basic connectivity services; it does not work for more sophisticated (and often critical) services such as mobile money and remittances, since transfers cannot typically be arranged under someone else's identity.

III. Mobile Birth Registration Services – the case of Senegal and Uganda

A. Pilot description

1. Vision and principle

In both Senegal and Uganda, creation of the birth registration service was stimulated by a non-governmental organisation (NGO), seeking to improve registration rates for the benefit of children.

In Senegal, an NGO called Aide & Action, whose activities were focused on facilitating access to education, had already identified the comparative lack of birth certificates as a barrier to education, and was working to improve registration efficiency by raising awareness amongst village chiefs. It appeared that the best way to improve registration rates was to make it easier for village chiefs to inform regional and national registration offices about new births. Consequently, Aide & Action was interested in working with a mobile operator to develop a widely available solution.

At Orange Senegal, a widget solution to capture and communicate the market price of sesame seeds was already in use, and it was established that Orange could use the same platform to deploy a birth declaration service. The solution had originally been designed by Orange Group in France: the group subsequently decided that it would develop new widgets for birth registration and trial it in Senegal to validate the solution. Distant villages represented the priority of the initiative, and the Kolda region was chosen to conduct a trial.

In Uganda, Unicef approached Uganda Telecom, having identified Uganda as one of the Sub-Saharan African countries with the lowest birth registration rate. Unicef established a Public Private Partnership with Uganda Telecom aimed at addressing the problem. The pilot was initially limited to 3 government hospitals and 6 local government catchment areas, with further roll out to the remaining 131 hospitals and 61 local governments during the course of 2012.



2. Objectives for operators

Both operators wanted to play a role locally and to get involved in a meaningful and valuable social initiative. But they also identified an opportunity to increase usage of their services.

- **Contribute to corporate and social responsibility (CSR) policy:** Orange, as a group, invests substantially in social projects, and has the ambition of becoming a benchmark CSR player in the telecoms sector. The Orange Foundation supports initiatives undertaken by local operating

companies when they identify projects that have a potentially high social impact.

Uganda Telecom, in a similar manner, felt it was important to play a visible and valuable role in the development of the Ugandan nation and its people. The company's birth registration initiative was seen as a key means of demonstrating that mobile operators could contribute to development and the welfare of citizens.

- **Develop usage of mobile services:**

Orange operates a 3G network in Senegal, and is in the process of promoting and popularising mobile internet services. However, most existing 3G mobile applications are designed in and for developed nations, and many do not match either the needs or the devices specific to emerging regions. Therefore, Orange Senegal saw the birth registration initiative as a key step towards developing new services that leverage 3G infrastructure whilst at the same time meeting local people's needs by ensuring availability of the service on 2.5 G Networks in areas not covered by 3G.

Within this context, the mobile birth registration trial made it possible to both test the underlying technology and educate the population about mobile internet services, with the village chief playing an "ambassadorial" role: equipped with appropriate devices, village chiefs were able to demonstrate mobile data services to other villagers.

Uganda Telecom saw an opportunity to develop a solution that would use its 2G and 3G networks, and increase usage not only of data connectivity, but also of calls and text messages. In parallel with the social initiative, families are encouraged to place calls and send messages to announce new births.

Both operators openly state that profitability was not the primary objective in launching a mobile birth registration service.

3. How it works

The solutions deployed by Orange and Uganda Telecom are different.



In Senegal, mobile phones equipped with specific java software have been distributed to 30 village chiefs. The chiefs are responsible for capturing information regarding births in their village, and transferring that information to the Senegal State Registrar.

The registration office is equipped with a mobile phone in order to receive the information sent by village chiefs. Once received, this information is checked and the birth is registered both physically in the registry, and electronically in a database. A registration number is then sent back to the village chief, who communicates it to the parents.

This registration number means that the child has been registered. Using this number, parents can collect a birth certificate from the registration office at any time, provided that they pay the corresponding fee.

In Uganda, a dual solution has been rolled out:

- Hospitals are equipped with a 3G connection (when necessary) to access a web-based application to register births.
- Registration agents (village chiefs, regional administrators) are given SIM cards mapped to their names, so as to be able to send USSD codes to register births occurring locally.

Both these solutions enable communication with the Registration Office, which validates each birth and sends back a certificate to be printed in the hospital or the district office for distribution to the family.

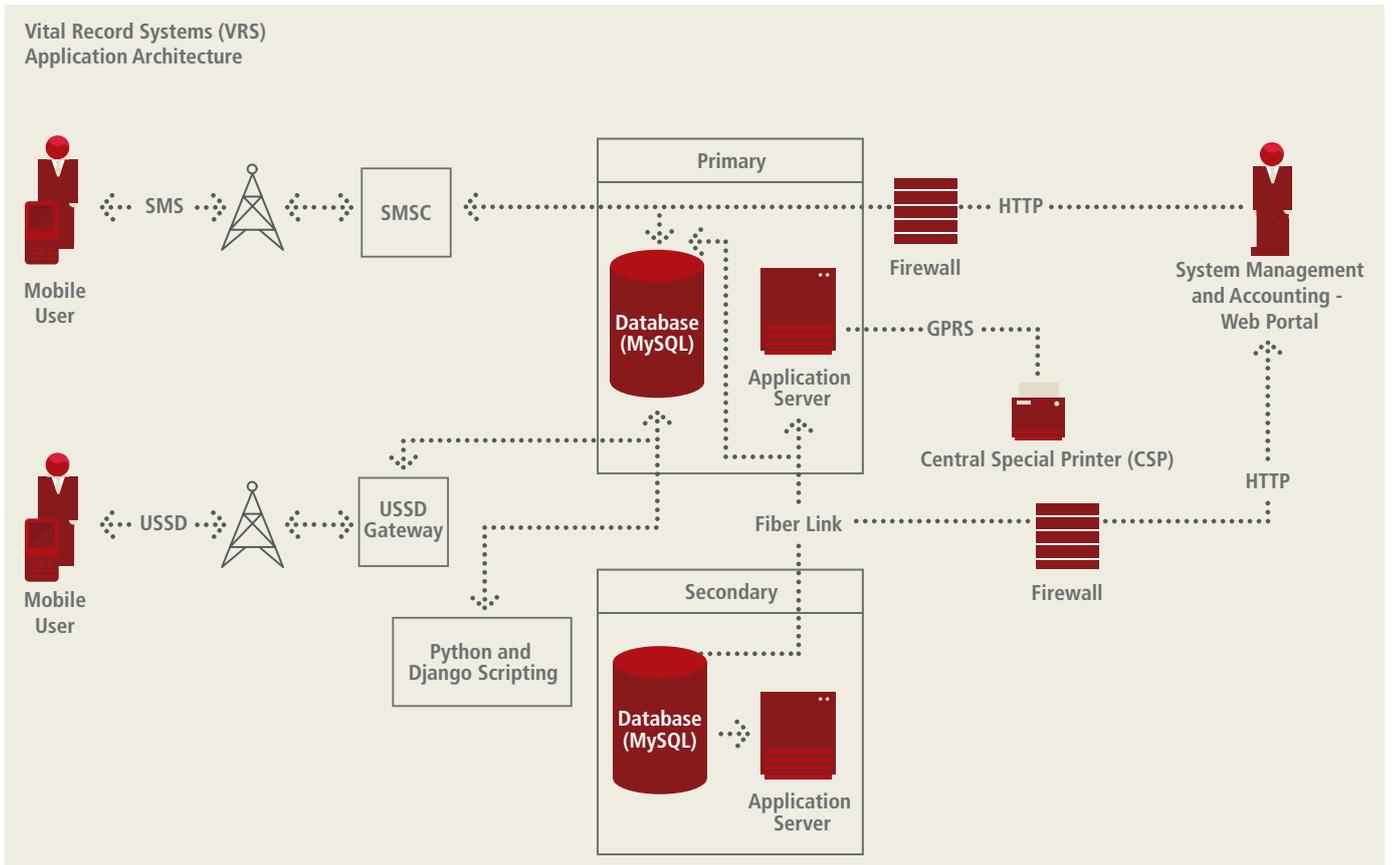


B. Technical solution

1. Technical solution chosen

The solution chosen by Orange is a java applet. This was considered to be more appropriate than an SMS-based solution, because it offered more wide-ranging customisation options and a better overall customer experience. It was also seen as an opportunity to introduce multimedia applications to rural populations.

Uganda Telecom used USSD codes on mobile phones, and a web-based application on computers. USSD may be less “user-friendly” than a customised Java applet, but has the advantage that it can work on any phone. The architecture of the system is as shown on the following page.



In areas where internet is unreliable, UTL came up with an offline version which allows registrars to register births in an area where there is no internet and synchronize with the online version later. This offline solution is currently in the final stages of being developed and tested.

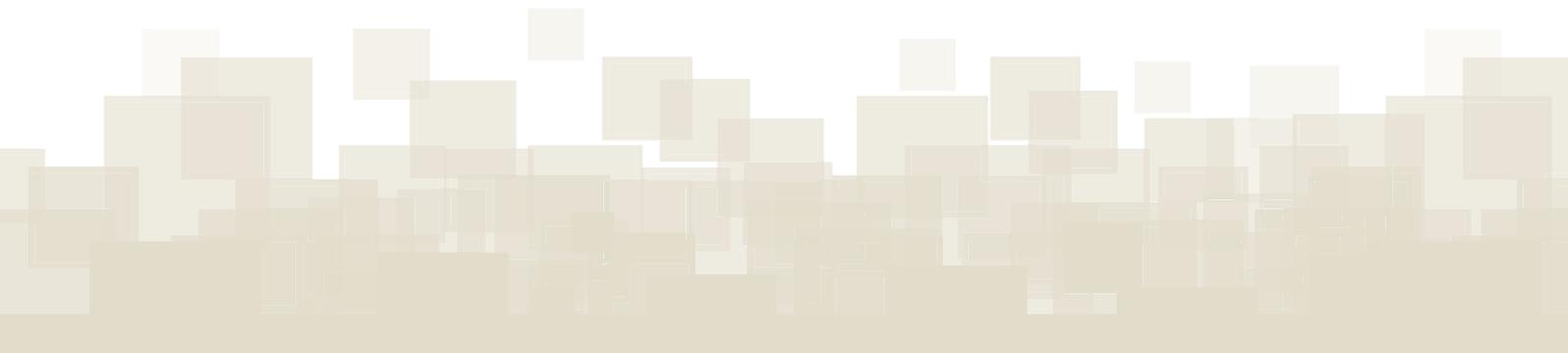
2. Potential improvements

Orange would like to perform some changes before the solution is rolled-out on a larger scale:

- **User identification:** At present, the solution includes verification that the person who uses the application is the village chief. The device itself can be identified by the MSISDN and a PIN protects the access to the phone.

- **User-friendliness and accessibility:** To make the service more accessible, one of the suggestions from Aide & Action was to adapt it to the multiple local languages that are used in Senegal. Doing so will improve ease-of-use for end users and reduce the need for training.

The Uganda Telecom solution is already being used in most areas of the country, but two ambitious goals are set for the future:



- Interoperability:** the next step is to extend the service to other mobile networks. This would allow for the creation of a unified database of birth registration events, with subscribers of any and all networks being able to use the system. It would also avoid the challenge posed by registrars holding multiple SIM cards, bearing in mind that they might not be willing to abandon their old SIMs. In Uganda, UNICEF is currently developing a USSD menu for MTN, another mobile network operator, which will send birth notification information to the Mobile VRS server. Interoperability solution that involves registrars possessing an extra phone/SIM card.
- Development of additional services:** Uganda Telecom would like to offer its subscribers the ability to retrieve their certificates at a point of sale (retail store), rather than having to travel to an official birth registration office.

C. Impact

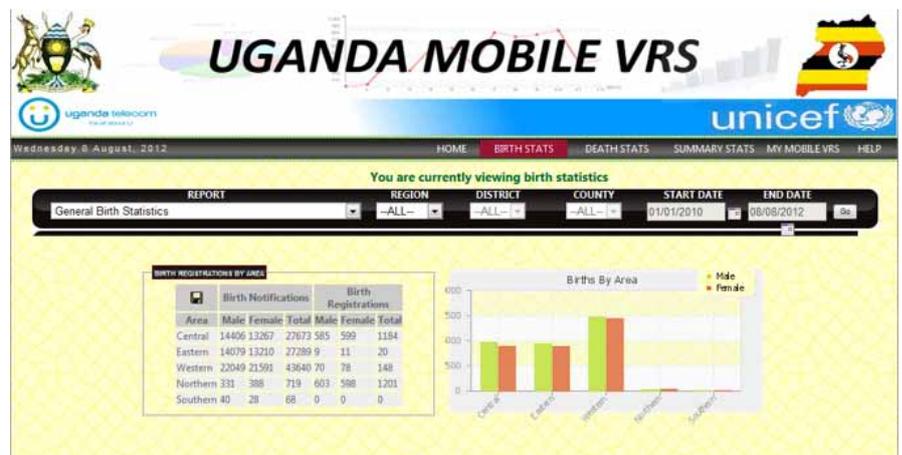
1. Social impact in the piloting area

In Senegal, the first pilot covered 30 villages and a population of around 50,000 people. In these villages, 100% of births were registered during the period, which represents about 300 children over the course of two months. The initiative has triggered the interest of the Senegalese government, which is keen to see the solution deployed nationwide.

Other African countries, including Benin and Cote d'Ivoire, have approached Aide & Action and asked for similar solutions to be implemented in their countries.

In Uganda, the initial objective was to reach an 80% registration level in regions where the rate was historically lower than 25%. In May 2012, the objective was achieved, with 145,441

births registered. The monitoring tool in support of the initiative is available online at the following address: http://196.0.19.123/birth_stats_view.php



2. Positive impact for operators

The pilot proved to be a very positive CSR investment for Orange in terms of genuine social impact and consequent media coverage. The trial demonstrated that the solution was both relevant to the Senegalese people and served an important social need (from the perspective of citizens and the government).

The birth registration initiative also demonstrated that innovative mobile applications can be developed and deployed rapidly and effectively. According to Valerie Ledunois, who designed the application for Orange, the success highlights genuine enthusiasm for this type of application.

Uganda Telecom has benefitted from positive media coverage stemming from its birth registration initiative, and this is likely to continue as the programme is extended into to other areas. The company can now leverage its unique experience and expertise to help other operators in Uganda and abroad to set up similar solutions.

D. Acceptance

1. Acceptance by village chiefs and parents

Village chiefs in rural areas are not often technology literate, and both operators and their NGO partners were concerned that they might prefer to continue using their traditional notebook to register births. However, the results were very positive and

village chiefs understood immediately that a mobile-based solution could help them save both time and money. They are now pushing for other services to be offered via mobile, including death registration, land registration or marriage registration.

Parents also adopted and trusted the new solutions very quickly. There were no obvious cultural barriers hindering adoption, and data protection did not appear to be an issue.

As a result, registration rates have been radically improved in a very short time span.

2. Regional comparison

Habits and beliefs often vary widely by region in Sub-Saharan Africa countries. In Senegal, it remains unclear whether the good results of the first trial can be replicated at a national scale. Orange plans a second trial in another area to see if cultural differences might play a role in the success of the solution. However, the nationwide success of the Uganda Telecom solution suggests that such differences may not be a major factor.

E. Economics

1. Current business model

As stated earlier, the primary objective of these initiatives for Orange and UTL was not to generate profits. Nonetheless, development and deployment costs were relatively low, and were split between the different stakeholders, making it possible to explore revenue generation options for the longer term.

Cost structure of the solution in Senegal

The pilot was made possible thanks to contributions from the initiative's stakeholders:

- Nokia provided 30 mobile phones for free, each of which cost around FCFA 24,000 (US\$ 45.8)
- Aide & Action provided training to the village chiefs; estimated at 1 to 2 hours per trainee
- Orange Senegal provided data packages for free for the duration of the trial; Orange estimated the cost of data packages to be FCFA 2500 (US\$ 4.8) per mobile, per month

There was no cost related to the involvement of the village chief, since birth registration is one of his formal responsibilities in the village.

Uganda Telecom has started to develop a business model around its solution, and expects to get \$1.5 million in annual revenues once the project is fully implemented, through a series of different revenue streams.

Potential revenue sources according to UTL

Increased number of subscribers

- Birth registration agents are also Uganda Telecom airtime resellers, which expands the company's reach in remote areas
- Create special promotions for birth registration across the country: agents offer special tariffs to potential new subscribers

Increased revenues from service usage

- Design specific products for birth registration (SMS text forward, certificate status, birth notifications to

relatives, mobile money)

- Data connectivity for hospitals, including sale of 3G dongles
- Data hosting and storage for 3.2 million records per year
- Registration agents are also mobile money agents (as well as airtime resellers)



IV. Key Success Factors

A. Identified success factors

1. Adaptation to local procedures

In Senegal, village chiefs are empowered by the state to register births. The Orange solution was designed to make the most of existing methodologies and infrastructure, and the application was therefore tailored to meet the specific needs of village chiefs. Results were quick to become evident because of the inherent inefficiency of the legacy paper-based system.

Nevertheless, birth registration procedures are different in each country; if this solution was to be implemented in another country, it would need to be adapted. The barriers to registration need to be clearly identified and the solution must be tailored to comply with the local regulation.

2. Ease of use

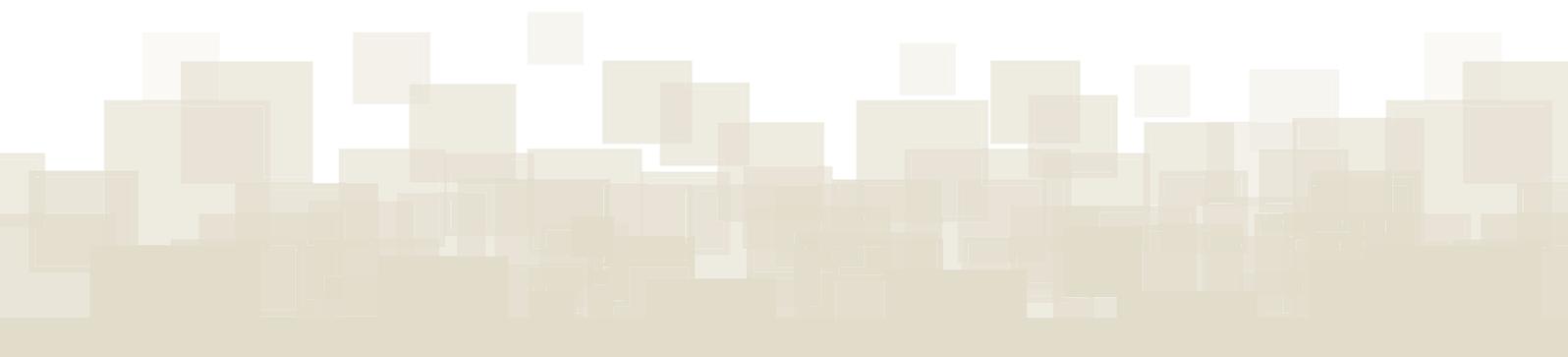
One of the key success factors of both pilots was ease of use. Offering an uncomplicated solution to end users made it possible to achieve much higher registration rates right from the start of the projects. Given that technology literacy is still low in many developing nations, simplicity – and use of local languages and dialects – are likely to be critical.

3. Support by other stakeholders

Close cooperation between stakeholders was a key element to the success of the pilots. Importantly, permission for the projects was required from the national government, and regional and local government bodies had to be involved from an early stage. For any such project, where processes already exist, the creation of a new solution must be undertaken sensitively and with respect for the sensibilities of government officials and civil servants.

4. Commercial incentives

In Uganda, birth registration agents are also airtime and mobile money resellers. A birth registration event therefore also represents a sales opportunity. This is an incentive for the agents to visit more villages, and meet more families, more regularly.





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