

## Building a Financial Platform from Scratch – Learning from Somaliland

In a previous post we talked about the opportunity to build a platform, from scratch, based on building cobblestone roads in Ethiopia. There are some similarities to the work we do in terms of building a self-reinforcing system that provides an opportunity for creative problem solving and overall economic expansion. This post builds on this by describing a different example of a platform, but one that becomes necessary as soon as you have roads to travel on—roads that make it possible to move more goods and services around—and that is a platform for money. In our context we call this banking, but what do you do if you don't have banking? I was lucky enough to have a chance to learn about this system and meet with some of the leaders of the service team—this post is about the mobile money platform that brought banking to Somaliland.

By way of background, Somaliland is an area located on the eastern horn of Africa, just north of Ethiopia. It is about the size of Arkansas. Currently, the UN sees it as part of Somalia, though it seeks independence from Somalia and operates essentially as an autonomous region. For those of us that have seen the movie Blackhawk Down or heard about pirates in the Gulf, Somaliland is not where all of that takes place—rather it is about 4 million people living primarily off the land through livestock (a population of over 24 million heads of cattle, cows, goats, and sheep!). The capital city of Hargeisa is accessible over land by crossing the border from Ethiopia (over that unpaved 28km road from the previous post). There is a budding tourism industry and with that a collective desire to maintain a safe environment (we were tourists #20 and #21 for 2011).



A few statistics on Somaliland:

- More than 73% of the population live in poverty
- Per-capita GDP is US\$226
- Almost 80% of the population have no access to healthcare and there are just 61 doctors and 222 nurses in the whole country
- 1 out of 4 children die before the age of 5
- Average life expectancy is 47

You enter Somaliland by land crossing from Ethiopia, unless you chose to arrive on a United Nations flight. From the border crossing pictured below you take the 28km journey (this is a major trade route, by the way) to the capital city after checking in at the customs station (this is adjacent to customs since photos of the office itself would be uncool):





The national economy is driven almost completely by livestock export to Arabia and Europe, but local economies are dependent on people selling their own goods at local markets, and there is plenty of room to develop. As you might expect, most of this trade is a cash business. While there is an official Somaliland currency (Somaliland Shilling, 1 USD = 1,600 SOS, but this varies quite a bit), much of the exchange of value takes place in dollars. In fact, those entering the country at international entry points are required to purchase SOS in USD in order to create a flow in of stable dollars. It takes a lot of SOS bills to buy stuff, even if prices are in line with developing world prices (the finest lunch of meat and bread costs about 5 USD, 8000 SOS). While photography in a primarily Muslim country is generally not permitted, occasionally some photos are allowed. Below is what an exchange station looks like in a local market. Each brick is about 10 USD.



Carrying around this much money is challenging to problematic (think of wheelbarrows of money). The situation would be ripe for banking and ATM machines, which is what we do. But, the problem is that there is no banking system—none at all available to people and businesses. The only bank in the country is the [Bank of Somaliland](#) and it has only a few offices (one in each city) with the primary function of managing government transactions and services such as printing currency and international exchange. In other words, there are no ATMs, no checks, no bank accounts, and certainly no loans. In fact, to pay any bills you have to present yourself at a city office such as the power or water company. To pay taxes you have to go wait on line at a government office, which wastes at least a day (or more) every month or so (so you can imagine the compliance rates). What to do?

While you could imagine just building a banking system like much of the world has, starting one of those from scratch is quite challenging when there is a lack of infrastructure. More importantly, much like building roads from scratch, one might ask what a bank would look like in the context of a country that did not evolve banking over a couple of centuries. Maybe you would build a different platform. There's a unique opportunity to build a bank when you have entirely different constraints. While this sounds like a remote and singular geographic opportunity, it actually isn't. There are a handful of poor and politically volatile economies in Africa where this type of platform could take root.

Imagine a bank that didn't charge any fees. Imagine if you could only put money in and take it out as cash. Imagine if the only place you could do that were branches of the same bank you deposited money into. Imagine that you didn't earn any interest on your deposits either. But in exchange, you didn't have to carry around all your cash and could far more easily pay bills, easily get cash, and easily deposit cash. As I thought about such a solution, my first ATM card that replaced by passbook savings account seemed rather similar (my "Super SAM" card from Barnett Bank). But how could you start such a "bank" or build such a "money platform"?

When we talked about building roads, there were two key elements of a platform technology:

- It is a technology that immediately solves problems faced by a significant number of constituents
- It is a technology that is part of a self-reinforcing cycle or ecosystem that gets stronger the more people use it for what it is intended

There is a third element to a platform technology:

- It is a technology that solves problems in the context of constituents in a straight-forward manner; and if it requires technologies to be built then those technologies are themselves readily available as a bootstrap.

This third point should also be familiar to us in Windows if you go back to the start of Windows. While it would have been possible and interesting to release Windows into a world that required everyone to buy a new type of hardware and no longer ran the thousands and thousands of existing MS-DOS programs, Windows was a platform technology that was built on an existing ecosystem. In using MS-DOS as a substrate, Windows was able to take advantage of the tens of millions of PCs that were out there and it also continued to run existing programs. While at the same time it met the first criteria of a platform by solving problems people had—things like using laser printers (or as a developer, eliminating the need to write printer drivers yourself) or moving data between programs (clipboard) to name a few. New technology platforms can of course, be built, but that is never a straight-forward path and history tends to forget all the failed attempts.

In a place where there aren't a lot of big buildings, roads, water, or power, there's not a lot of traditional infrastructure upon which to build banks. There are, however, mobile phones. In fact, mobile are everywhere. Penetration of mobile phones in Somaliland easily rates them as ubiquitous. While worthy of a separate post, imagine how much time (and time is the only asset most people have) is saved by phones even amongst people working in open air markets. A simple example is whether or not to slaughter another animal to sell—without refrigeration you only have a few hours to capitalize on the meat so you'd better be right. A simple call to a contact in the market can help you understand demand and make the right call.

Since all transactions have been happening by cash, and everyone has a mobile phone, a "banking system" platform needs to be built to take that into account. Additional context would be that most people (and businesses) do not have official forms of identity, equivalent of social security cards, street addresses, or other means to establish their identity. They do, however, have a mobile phone number and for most people that is far more important than any piece of paper and is as much an "identity" as a driver's license or passport.

Africa (Kenya is where this started) is already the home to a major, and innovative, cash based mobile banking system called [M-Pesa](#) and much has been written about it. It is a sophisticated system developed by major international mobile operators, led by Vodafone. M-Pesa provides for peer to peer

transfer of money and the withdrawal and deposit of cash, essentially funded by mobile minutes on account. By virtue of the origin of the service and the resources devoted to developing it, M-Pesa is sophisticated technically and in terms of the features. As it has grown it also has far reaching business deals (ability to pay, deposit, and transfer money) with many national and international organizations. M-Pesa also represents a substantial portion of profit for Safaricom, the mobile operator that introduced the system.

In Somaliland, there are two major mobile operators, TeleSom and SomTel. There is no telecom regulatory body, but the companies work with the government and agree on things like rates. Rates are very cheap and comparable to US per-minute rates, which are much cheaper than many other locations. Relative to banking there is an overburdened and undercapacitated central banking authority (the director's salary is \$500 USD per year)

Seeing the work by M-Pesa and the need amongst its own subscribers, TeleSom decided to develop a mobile payment system. As you can imagine, the primary problem they set out to first solve was to make it easier for their existing customers (hundreds of thousands) to just buy more minutes/texts. You can imagine that a big thinking person (or a vendor or consultant from the developed world) might develop an "app" or use at least a WAP mobile web site, or just a PC web site. All of this would fail the test of working within the context of existing customers. This is a market that for the most part is using recycled handsets from around the world—there's a large presence of used phones for sale that don't even have color screens. And of course, there's no credit so all usage is pay per use. PC usage is very high but not readily accessible. To add a more functional challenge, transaction fees can't be part of the equation.

Enter Zaad. [Zaad](#), was introduced to TeleSom subscribers in 2009. The first goal was to increase usage and sell more minutes and to do so more efficiently. The system is a home grown platform and was built locally from the ground up. It currently has over 250,000 active users on a given month and on average a person is doing \$30 of transactions per week and 50 transactions per month in an economy where the GDP per capita is less than \$1.25 per day. The service will probably have 100% penetration among their customers. Let's look at the service.

At the technical level, the service is built on the GSM standard [USSD](#). It is sort of the orphan of the GSM standard like UDP is to TCP/IP. The neat thing about this is it allows for a simpler menu driven experience that looks sort of like a WAP site did in 1996 that works on the most basic feature phones—no browser required. Some implementations of M-Pesa uses SMS and actually has a downside of requiring code (and code updates) on the phone to interpret SMS messages. That's not a readily scalable solution.

In order to use the service you need a TeleSom SIM for your phone. In order to sign up you need to go to one of the official offices of TeleSom. The first thing that is wild about this is that you are essentially opening up a bank account, but you don't have an address, social security number, or anything to prove who you are. TeleSom developed their own system that involves a photograph and biometrics when you sign up. So any disputes later on can be resolved definitively. Because they are not the

government, they are being "trusted" to not do the wrong thing with this information. This is critical because as you can imagine, Somaliland has refugees and other internally displaced people who probably have very good reasons for not being "official". Once you have an active account, you are free to use the service. You only need your SIM (and a phone) and a self-selected PIN number (which you can always change).

In addition to a personal account, it is possible for a merchant to establish a merchant account. So if you are a larger business with multiple employees (rather than an owner-operated market stall) you can create a unique Merchant ID to use rather than an individual phone. In practice, most merchants are sole proprietorships and use a "personal" account (sort of like using a personal phone number at work).

The service provides a core set of functionality all over the phone:

- Deposit cash
- Withdraw cash
- Send money to another person
- Pay a bill to a merchant
- Transfer money
- Charge their SIM

The menu (generated via the USSD protocol) looks something like this in Somali (notice the Chinese handset—the China presence in Africa is itself a major topic):



As you can imagine, deposit/withdrawal represents the most popular functionality. The service would not be so interesting if you had to always trek back to the main TeleSom office to do this (that would be

like it was for my old passbook account). Instead, you can go to any authorized Zaad kiosk for the transaction. As it turns out there were already tons of these kiosks because that is where you used to charge your SIM (in fact they are everywhere you look—it is an easy side business for anyone with an existing point of presence). You walk up to a kiosk and just do a few steps:

1. Dial \*888# [Note this is how you access things via the USSD protocol]
2. Enter your 4 digit PIN
3. Enter 3 (Withdraw Cash)
4. Enter Store ID
5. Enter Amount you want to withdraw
6. On success, you and the store will receive an SMS confirming the transaction.
7. The Store will then give you the cash.

Depositing is even easier. Walk up, hand a guy money, receive an SMS. To recharge your phone, you give the same person some money and you get an SMS with a voucher number for the amount of airtime/texts you bought. Capitalism rules at the kiosks—the fees charged are up to the merchant.

If you want to pay a registered merchant, you use a Merchant ID provided to you and then both of you receive confirmation texts.

When you see this all in action it of course feels a bit like PayPal, except it takes like no time at all. What do these kiosks look like? They look just like money changers—dollars are kept locked underneath or in a physical store behind the people in the photo. Those dollars are really worth something. That number on the stand is the Store ID. Ben Franklin never looked so good!





Let's talk about developing economies and one of the biggest sources of money people use to live. Money doesn't just come from the transactions for your own goods and services, but it comes from *remittances*. This is money sent from people who have emigrated and are making more money in another country. This is billions of dollars a year, even for Somaliland. In fact, a huge source of these funds is right here in Seattle, which has one of the largest Somali populations in the US (second to Minnesota). The closeness of family (clans) creates these centers of population.

It has historically been very difficult to remit money and in a place lacking infrastructure (there is no postal system here) and addresses it is impossible. Remittances are commonplace in the Islamic world and are called, Hawala. In most Islamic areas there are services that have developed that replaced the person-to-person process used for centuries. In Somaliland, the global Dahabshiil is a for-profit that specializes in Hawala is used by many. Zaad is disrupting them to some degree, but also partners with them on the backend to actually do the transfer.

Perhaps the coolest thing about Zaad is that it was built as a home grown system. All the work happened in Somaliland, according to the people we talked to. And they are very proud of that—it is created, owned, and operated by the TeleSom company.

The role of banking as a platform element is well understood. But few of us could imagine building a banking system from scratch, and that is just what Zaad is. The positive reinforcement loop is readily apparent, to both the people using the service and to the folks that run TeleSom.

There are some big questions that TeleSom will face as the service becomes ubiquitous. We had a chance to talk to the leaders of the service to learn more about how they will approach moving the system forward.

**Security.** It is amazing to think that people with very small amounts of money will literally trust all their money to the phone company. Yet in a world where there are few entities to trust, the phone company is reliable and solves a lot of problems for you. In addition, TeleSom provides a great many transparency services. About 6 months after the service launched, a web-based system was introduced. One of the key benefits of this is being able to print out a full transaction history. This allows you to have your own records for future dispute resolution. And of course keep in mind that your photo and biometric identity are on hand. We had discussions about fraud, PIN-lockout, and so on and it seems to me they are at least as aware of the challenges and solutions as one could hope.

**Future services.** One of the biggest areas for opportunity for Somaliland that is currently being considered is for the municipal government to find a way to use the service to pay taxes or to services such as utilities. There are some obstacles to doing this, first and foremost is that the government does business in Somaliland Shillings. M-Pesa became very complex because of all the services. It is not clear Zaad needs to do this right away but they also want to make sure they are aggressive. In talking with the folks it sounds like they are very much geared up for a feature war and want to move fast and not get left out.

In terms of a positive reinforcing loop, imagine how good being able to easily pay tax and fees could be. Today compliance is low, not because it is bad to pay, but simply because it is too hard to pay. If time is your only asset, then spending a day trekking to an office and waiting on line to pay a monthly occupation or business tax/fee is simply prohibitive. If more people pay, then services can improve. And if it costs less to pay (fewer offices and manual processes) then more money can go to services. What an awesome platform for the government.

**Competition.** SomTel is already developing their competitive service. This is as expected. You can also expect the remittance firms to feel the pinch as well. So competition will heat up. And when competition heats up...

**Interoperability.** Remember when ATMs used to not talk to each other. Remember when Cirrus and PLUS had to litigate in order to get to work across banks. It is interesting to think about how these systems work when two people have different carriers attached to their SIM. I bet cash becomes the short-term intermediary. But that starts to look a lot like a \$3 ATM fee for a \$20 withdrawal. Sigh, but the good news is folks are clearly aware of and up to the challenge.

**Regulation.** M-Pesa exists in countries that have banks. And those banks are not happy. As you can imagine they are doing all the lobbying they can to get the operators to be regulated as though they were a bank. This is much more challenging than it appears. First and foremost, they don't really offer the key services of a bank which is to take the money deposited and loan it out (which is why, for example, micro finance institutions do get pulled into regulatory discussions). This means all the things regulations are there to protect, primarily reserves on hand, do not apply. You can bet that the TeleSom folks are on top of this. They are particularly sophisticated about this topic even though they have little regulatory experience. In our discussions it was clear that some folks have spent time abroad learning. For the time being, they are going to be able to avoid being called a bank since there are no banks to compete with them.

One super interesting thing to keep in mind is that all transactions on Zaad happen on the books of TeleSom. It is simply moving existing money from one SIM owner to another. The risk is very low and the transaction costs effectively zero. That's nothing at all like a bank that takes your money and gives it to someone else outside the bank as a loan (or invests it). With no money leaving the system, this is a different type of bank. That's why interoperability becomes a challenge—it means companies need to trust each other and risk is increased. As long as TeleSom is solvent and does not attempt to profit from your "deposits" things are very safe and very cheap.

**Revenue.** The other reason regulation is not going to be easy is because TeleSom does not currently charge for the service. To me this is the most interesting question. The TeleSom folks are quick to say they are all set up to charge and ready to go. This is, after all, what M-Pesa does (and why the service is 10% of Safaricom's revenue). But this is not such a no-brainer to me. The service does not cost much to operate and essentially pays for itself based on the reduced costs of adding minutes (since you already have their cash on "deposit"). And it is certainly going to alienate people. It does feel like there is a Bank of America moment waiting to happen.

There are many ways to potentially charge and seeing this evolve will be very interesting. The PayPal model seems interesting – charge on the receipt of funds. But perhaps cash transactions should be free, though that might create an artificial incentive. Should government transactions (once the currency is solved) be paid for by a flat fee or percentage, by the government, by the utility? Who pays in a revenue model is a complex question. And given the amount of money any individual has, these will create new behavior patterns—like those of us who refuse to pay ATM fees so we choose banks differently or seek out specific ATMs.

In previous [posts](#) (“de-monitization”) we have talked about how in a technology driven product, services that used to cost money or were sold at a profit by one party, have a likelihood of becoming a free part of someone else's offering. To use a common analogy from the LITEBULB discussion group, Zaad is almost certainly like the free parking at a Las Vegas casino. While parking is charged for in other places, there is little reason to charge if you know you will make money at the game tables.

Zaad is a remarkable service. It is remarkable for how it revolutionized the economy in a year (not an under-statement). It is remarkable in how it has penetrated most every family. It is remarkable in that it is complex technology developed in-house in an area of 4 million people and delivered reliably, robustly, and throughout a network of thousands of partners. Each of those partners make money directly from the service. The amount of friction in the economy has been reduced. The more people have the system, the more people want to use it.

Banking has always been a platform. But who would have ever thought we'd see an entire banking system built from the ground up by a local company connecting little metal kiosks to mobile phones, in a place where the per-capita GDP is about \$300.

--Steven

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