

Financial literacy

Financial literacy is wide-spread in Guinea for multiple reasons:

- Lack of general education
- Cash rules in Guinea
- Lack of savings or funds
- Lack of numeracy skill

Common education is a basic need, in order to promote a financial product to the poor guineans, support is needed in the basics of finance. The central bank BCRG is exploring this area.

E-money license in Guinea

These regulations are based on regulations from the West African Economic and Monetary Union (WEAMU) who central bank of West Africa (BCEAO) seem to refer to according to this article

<https://www.gainde2000.com/electronic-money-establishment-opening-the-central-bank-of-west-african-states-puts-order/?lang=en>

To become an E-money issuer some requirements have to be met:

- Non-Financial institute issuers must meet an initial paid-up capital threshold of 300 million FCFA (500.000 USD)
- Monthly reporting, balance sheets, activity, account volumes
- Funds converted to e-money to be placed in bank or Microfinance institute (MFI) setup for this purpose. The funds must be reconciled daily against e-money issued.

And much more.

<http://documents1.worldbank.org/curated/en/903901513579161990/pdf/122088-WP-PUBLIC-Regulatory-Framework-for-DFS-in-Cote-d-Ivoire-Nov-2017.pdf>

I find it fair to handwave and assume that we can obtain an E-money issuers license since it is a basis requirement for this project. An alternative workaround is the use of cryptocurrency which does not require this license.

Exchange protocol

Who's the user?

Agent is the person providing liquidity, both in terms of cash and e-money, the agent is the market maker. In return for providing the service and the supply, the agent can take a fee of the transaction for the service.

User is the person in need of either e-money or cash, and is the market taker. If the user determines that they have a surplus of cash or e-money they can easily swap in and out of the agent role. Since the user has the need for a transaction to occur, they also are the ones paying the fee.

How does an exchange occur?

The user sends a request to the server asking for a list of relevant agents, their contact information, location and their fee. The user can then select between the available agents and take contact to the preferred agent. From here the user and the agent settle on a time and place for the exchange to occur. The agent initiates the transaction since they'll be taking the fee and presumably they have more experience with the system.

Scenario 1: Depositing

Alice would like to deposit 200 Guinean Franc (GNF) to their e-money account.

1. Alice looks up the available agents nearby and
2. Alice contacts Bob who has a 1% fee, either through SMS or phone call (or the application. Future support).
3. They settle on a point of transaction at the local store. Bob is the agent and is already familiar with the system and sends a USSD message with the amount he would like to transfer. When entering *139 a menu will appear to ease the process. The resulting message would look as so

**139*8*200*12345678#*

Where 139 is the USSD channel

8 is the option, in this case an agent transfer

200 is the amount of GNF 12345678 is the recipient

4. Bob will then get a response back asking if he'd like to confirm his transfer of 198 GNF (200 minus his fee) to 12345678. To confirm he enters

**139*2*1*1234#*

Where 2 is the option to confirm, 1 is the first pending transaction and 1234 is Bob's PIN.

5. Alice will receive a message saying they've received 198 GNF which includes a 2% fee.
6. Alice can hand over the GNF to Bob.
7. Bob gets a final confirmation as well, saying the transaction has occurred. They can now both see it in their transaction history.

USSD codes

| USSD Code | Action | Example |
|-----------|---|---|
| 1 | Help | *139*1# <i>Return a list of ussd codes</i> *139*1*5# <i>Return help about how to transfer</i> |
| 2 | Confirm | *139*2*1*1234# <i>Confirm the first pending transaction using their pin, 1234</i> |
| 3 | Decline | *139*3*2# <i>Decline the second pending transaction</i> |
| 4 | Get balance | *139*4# <i>Return the GNF amount</i> |
| 5 | List transactions | *139*5*1# <i>List the recent 5 transactions</i> *139*5*2# <i>List the transactions from 5-10</i> |
| 6 | Transfer (fee-less) | *139*6*200*12345678# <i>The user transfers 200 GNF to 12345678</i> |
| 7 | Request (fee-less) | *139*7*200*12345678# <i>The user requests 200 GNF from 12345678</i> |
| 8 | Agent transfer | *139*8*200*12345678# <i>The agent transfers 200 (minus the agents fee) GNF to 12345678</i> |
| 9 | Agent request | *139*9*200*12345678# <i>The agent requests 200 (minus the agents fee) GNF from 12345678</i> |
| 10 | Mark as active/inactive agent providing e-money | *139*10*200# <i>The agent marks themselves as active to deliver e-money of up to 200 GNF.</i> |

| | | |
|----|--|---|
| | | *139*10# <i>The agent marks themselves as inactive to deliver e-money</i> |
| 11 | Mark as active/inactive agent providing cash | *139*11*200# <i>The agent marks themselves as active to deliver cash of up to 200 GNF.</i> *139*11 <i>The agent marks themselves as inactive to deliver cash</i> |
| 12 | User signup | *139*12*1234# <i>The user signups with 1234 as their PIN</i> |