Whitepaper

draft v1.1

The easiest way to send money to a Visa Card.

Instant, secure and direct. No transfer fees. No exchange rate markup.

Powered by:

Contents

Vio: Supporting digital transformation in Africa

A growing millennial digitally-savvy population combined with high mobile phone use have put African countries at the forefront of digital innovation in financial services.

Digital disruption is displacing existing marketplaces, changing current business models and challenging current ecosystems. This disruption has brought a wave of new, efficient and creative technologies which challenge the normal way companies operate.

In Africa, high mobile phone usage rates have given rise to new customer behaviour, industry disruption and adoption of emerging technologies. These provide an opportunity that can be used to drive the cost of P2P remittance transfers down.

By harnessing the power of mobile phones and reducing dependency on cash as the starting and end point for P2P transfers, VIO aims to become the leading digital platform for remittances in Africa. This will radically reduce remittance and transfer costs that senders and receivers of money currently pay for these services. As a result, reducing remittance fees has become an important international policy objective. The potential gains could be as high as $20 billion in resources flowing directly to the households of remittance receivers.

How Vio Works

Vio is a digital P2P transfer platform powered via the Ethereum blockchain and Visa Direct.

Vio leverages the Ethereum blockchain, in combination with Visa Direct, to create an innovative digital P2P transfer platform. The Ethereum blockchain provides the mechanism for users to instantly send and receive funds, domestically & internationally, and Visa Direct is then used to disburse fiat currency seamlessly, securely and directly into a user's Visa Debit card.

Vio aims to make international transfers into and intra-Africa digital, instant and free. The Vio wallet will be available globally, and launch markets have Exchange functionality to convert Vio tokens to local fiat currency directly into a user's Visa Debit card. These markets include Nigeria, Kenya, Ghana and Cameroon, with expansion to other African and Global markets as per the post launch roadmap.

Ethereum Blockchain

In a changing global payments environment, emerging technologies have opened up new ways for fintechs to reach previously excluded populations of the world. The advent of the blockchain has enabled remittance start-ups to take advantage of the P2P network of the blockchain to enable quick, secure and cost effective transfer of money between individuals across the globe. The blockchain use case is therefore well served in underdeveloped markets, particularly those in Africa. The true disruptive potential of blockchain is to bring down the cost of remittances significantly and facilitate instant secure payments anywhere in the world. However, due to the requirement for local fiat currency by recipients most of these models still have to rely on a costly corresponding receive network, for the conversion to local currency. The last mile issue is where the potential for innovation is.

Visa Direct

Visa Direct offers real-time push payment capabilities that use Visa's global payment system, one of the world's largest electronic payment networks.[1] Through a participating financial institution, businesses and consumers can use the Visa network to send money to over one billion eligible Visa card accounts.

Visa Direct provides Originators (and eligible third parties such as Vio) with a mechanism to push payments directly into Visa card accounts. This push payment capability is delivered through the use of the Original Credit Transaction (OCT), a Visa network transaction that enables eligible Visa cards to receive push payment credits.

Vio: Ethereum blockchain + Visa Direct

Vio users can send and receive funds - domestically & internationally - either to another users profile or wallet address via the blockchain. Users can then Exchange Vio tokens to be converted to fiat, and delivered directly to their Visa debit card account via Visa Direct. It's that simple.
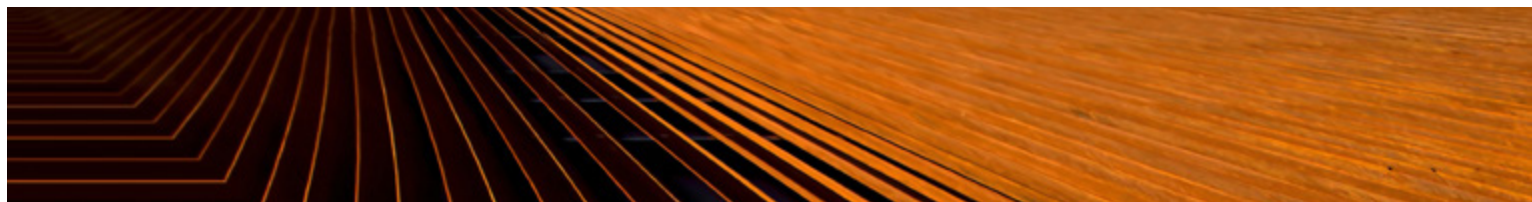
# Digital transformation in Africa

The high cost of remittances

Global Remittances totaled $429 billion in 2016. In some poor countries, remittances make up more than a quarter of national income.

Currently, it's expensive to send money overseas, which is especially damaging for the immigrants sending small savings home to the developing world. The World Bank says transaction fees average 7.5% globally, however, in many remittance corridors, they're a lot higher. Sending money to Africa from the U.S. or Europe sometimes costs an extra 15%, and within Africa, the fees can be as high as 20%.[2]

One of the main reasons why the cost of sending money cross-border is currently so high is that most payments start and finish as cash. This process requires human agents to be employed to receive and disburse the money, raising the price for everyone.

Development groups often point to a lack of competition and financial regulation in poorer countries. African migrants in particular pay a so-called "super-tax" on international transfers, and the market power of MoneyGram and Western Union is likely one proximate cause. In a 2014 report, the London-based Overseas Development Institute said the "two companies account for $586 million of the loss associated with the remittance 'super tax,' part of it through opaque foreign currency charges."[2] As a result, reducing remittance fees has become an important international policy objective. UN Sustainable Development Goal calls for, by 2030, a price reduction of migrant remittance transactions to less than 3% and the elimination of corridors where transaction costs are more than 5%. The potential gains could be as high as $20 billion in resources flowing directly to households.

Africa remittances received

Billions
- < 1.19
- 1.19 - 3.84
- 3.84 - 9.87
- 9.87 - 19.85
- > 19.85
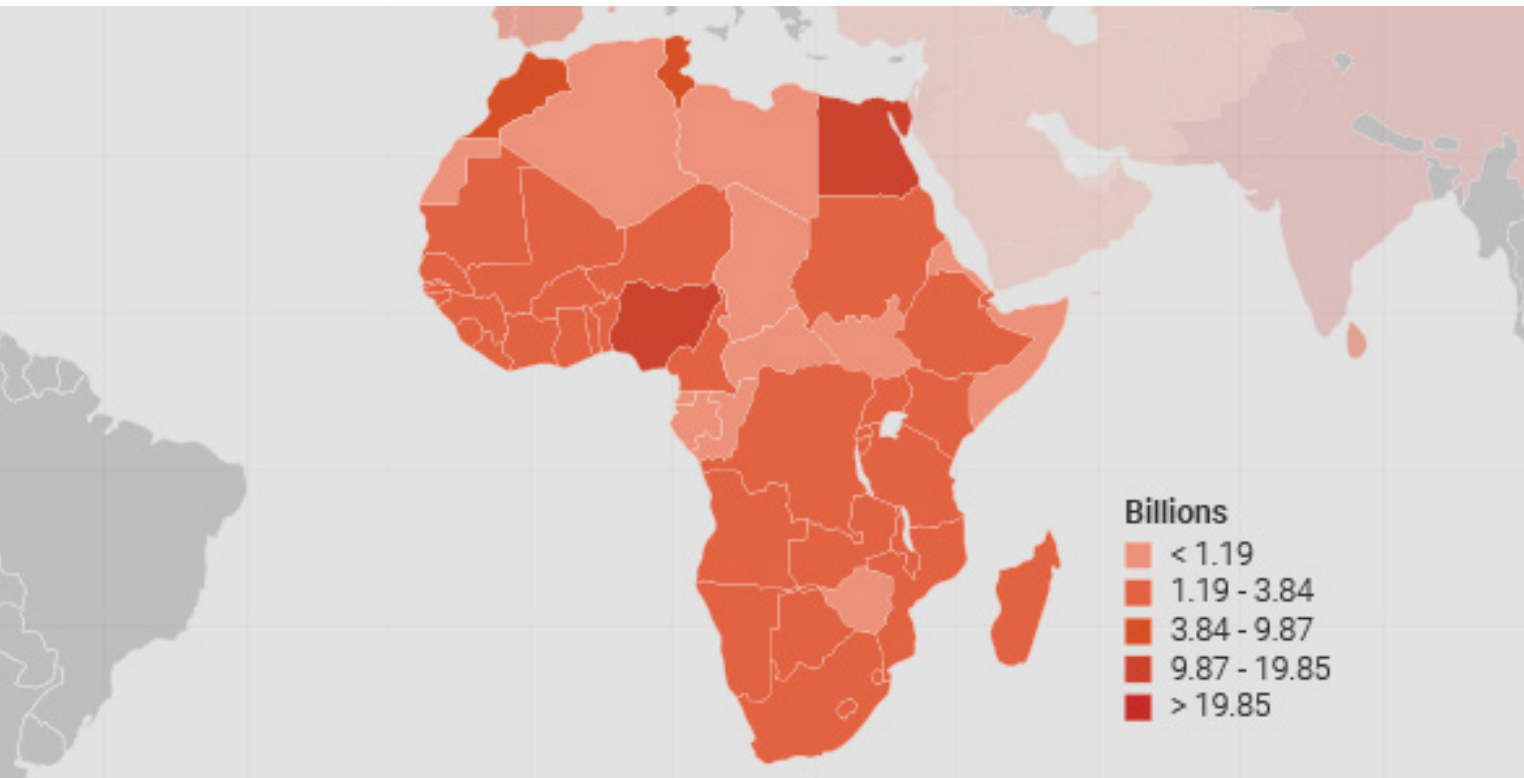
Below is the current Remittances Received into the Africa countries that will be available on at launch.[3]

Launch Countries	Personal Remittances Received, 2016.
Nigeria	$ 18.9 B
Ghana	$ 2,0 B
Kenya	$ 1,7 B
Cameroon	$ 241 M

2. https://www.fastcompany.com/3067778/the-blockchain-is-going-to-save-immigrants-millions-in-remittance-fees
3. World Bank, Personal Remittances Received, 2016.

Vio App

App Functionality

The Vio is a native app (iOS and Android), containing the following functionality (market roll-out dependent):

- Profile & Wallet
- Send funds domestically & internationally (either to another profile or wallet address)
- Exchange tokens to fiat (directly into debit card via Visa Direct)
- Top-up purchase of tokens (using Visa/Mastercard)
- Request funds from contacts
- View transaction history
- View Information section (About, Terms and Conditions, Policies)
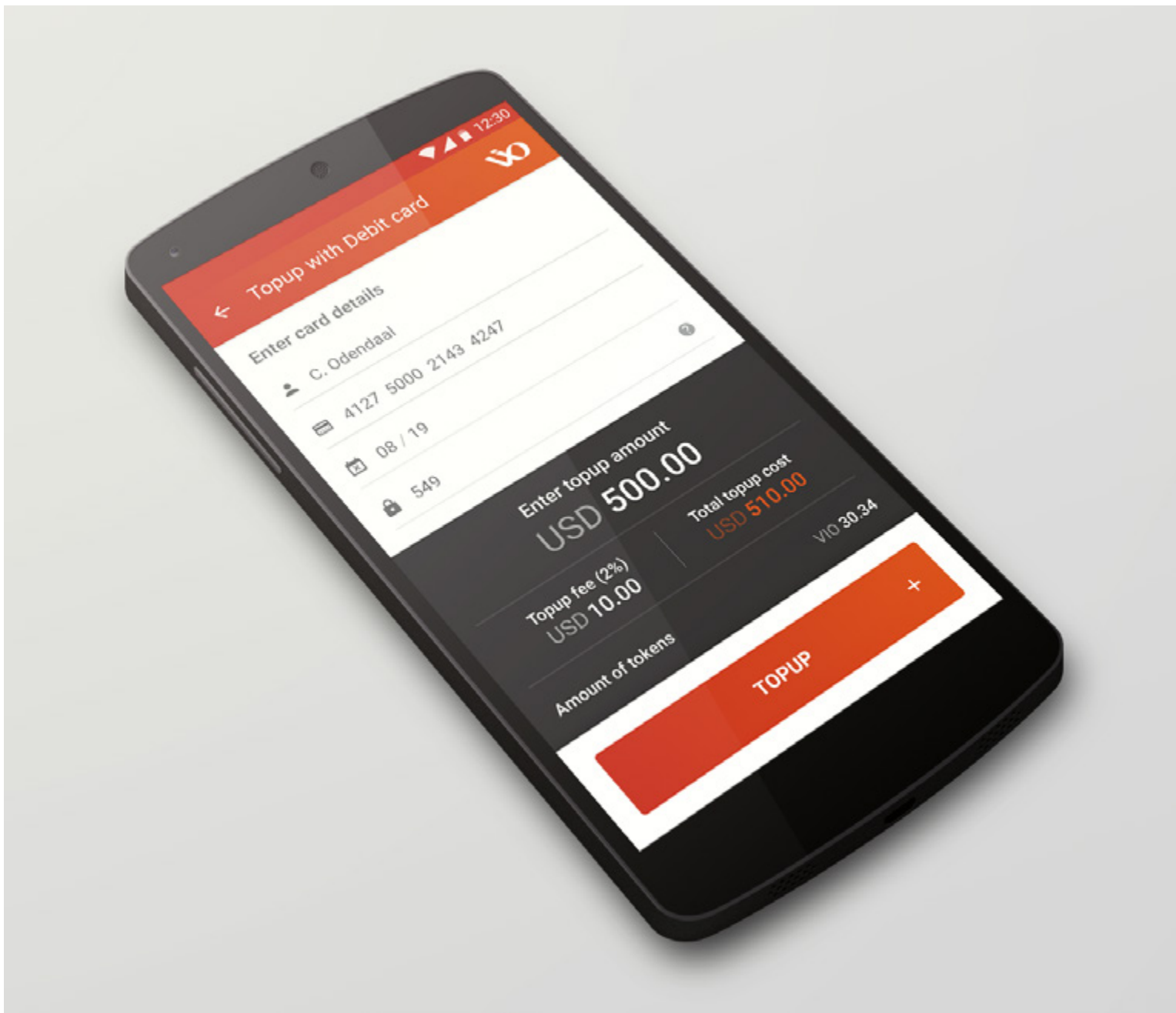
Profile

- **Customer Identification Program (CIP)**

A Customer Identification Program (CIP) is a United States requirement, where financial institutions need to verify the identity of individuals wishing to conduct financial transactions with them and is a provision of the USA Patriot Act. Although Vio is not a financial institution, the program has implemented a CIP to ensure best practice.

- **Profile Information**

The following customer details are captured in the profile registration process: First name, Surname, identification number, mobile number, email address, address, city and country.

- **Digital ID Verification**

Vio will be utilizing Acuant's AssureID functionality in order to verify that the users ID scanned is real and to perform facial verification. If the verification results fail (i.e. the face scan and the ID image do not match sufficiently), the user will not be able to continue with the register process.

- **PCI Compliance**

Spreedly is a secure PCI compliant data capture, credit card vault and payment forwarding provider. All sensitive user debit card info is stored by Spreedly in a secure PCI compliant environment. The card vault will return a token to be stored in the Profile Database against that user's record. That token will then be used whenever that user processes a transfer request.
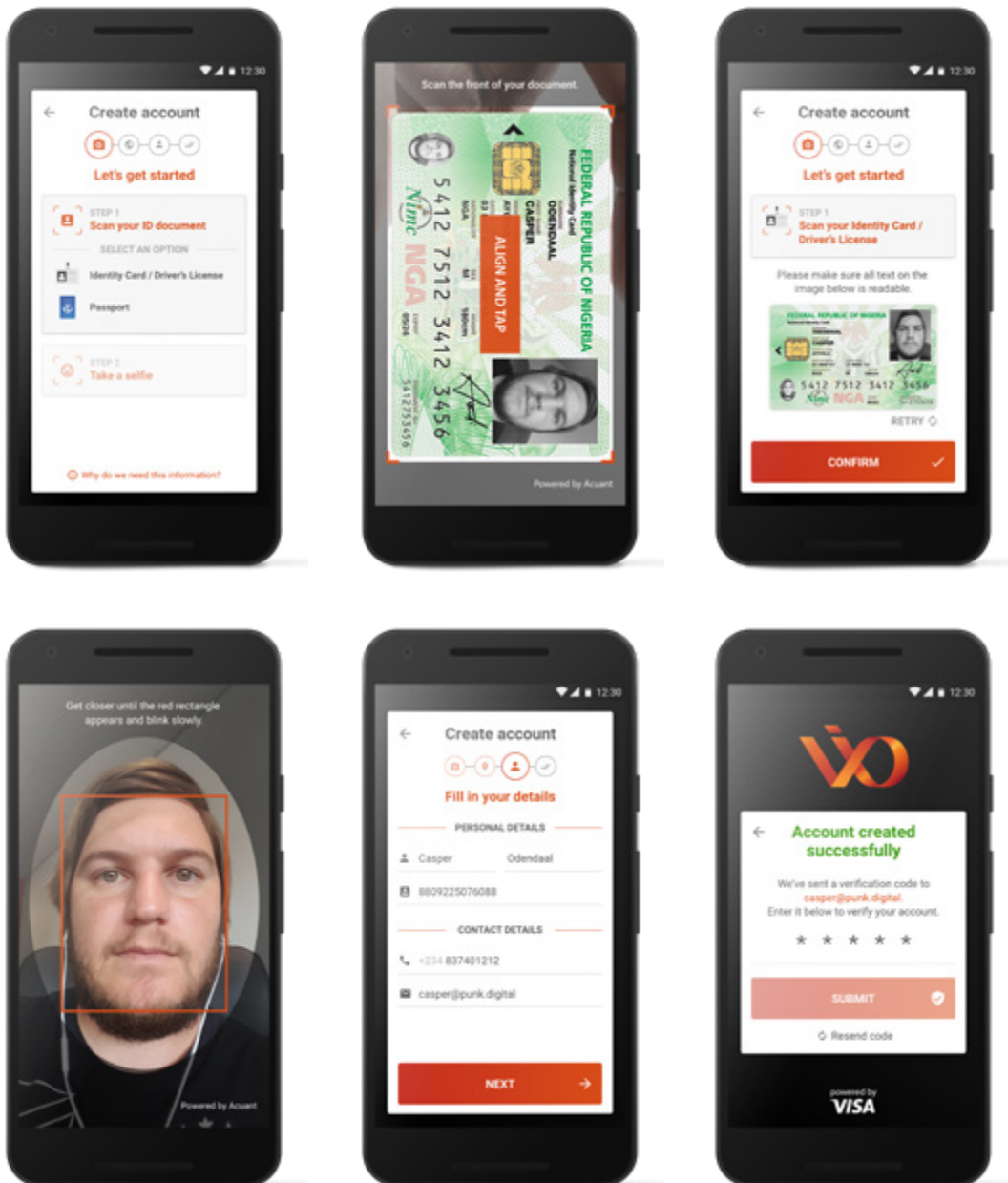
Send (International transfers)
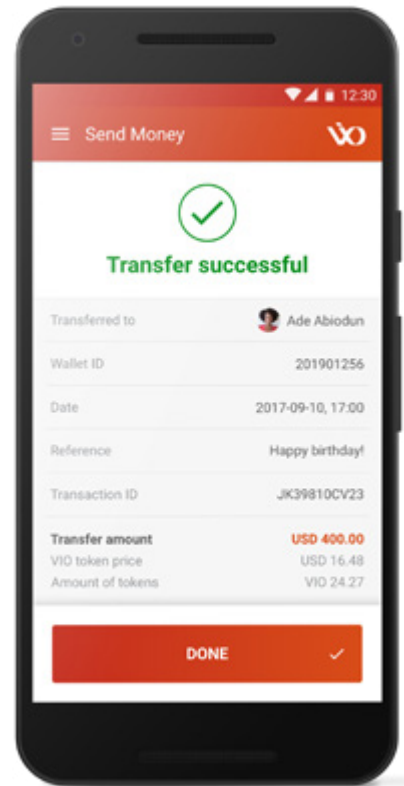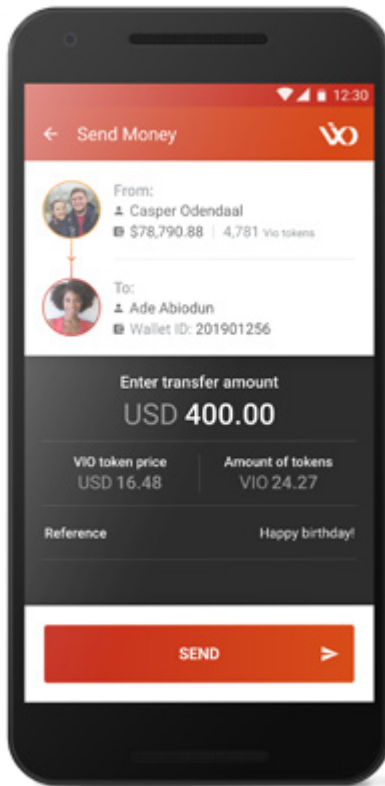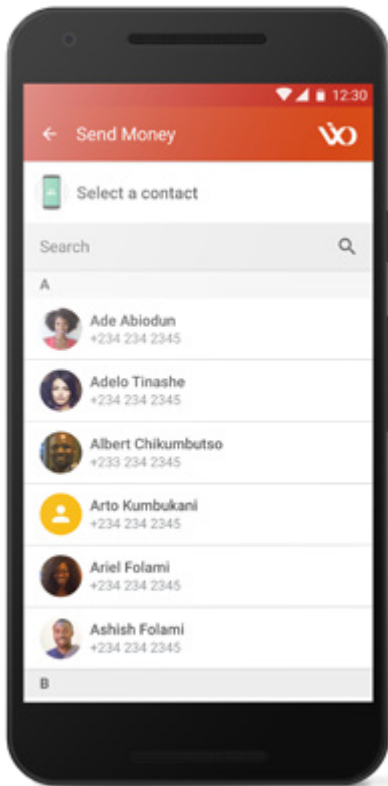
Exchange (directly to a Visa debit card via Visa Direct)
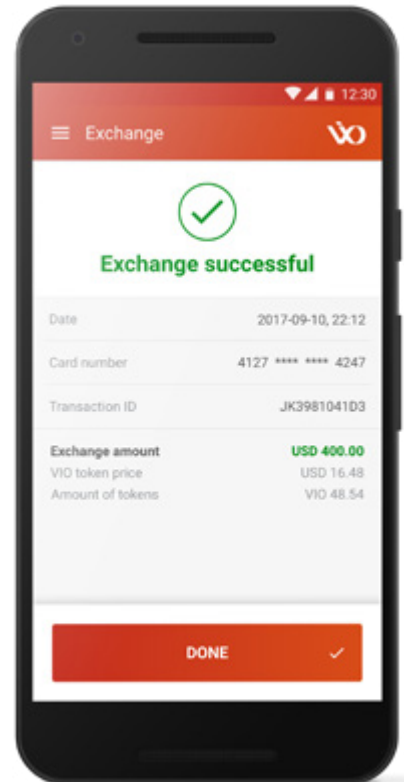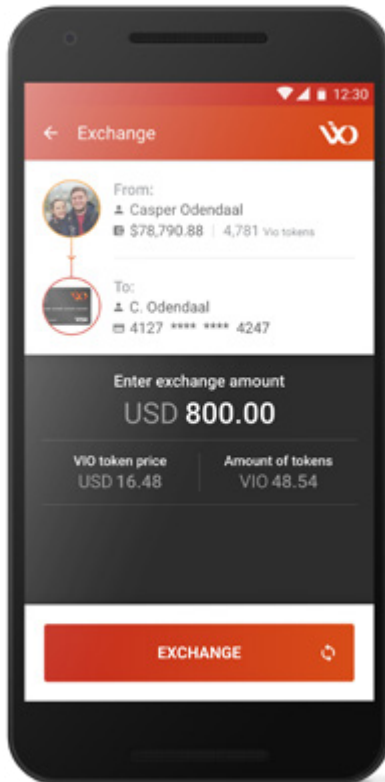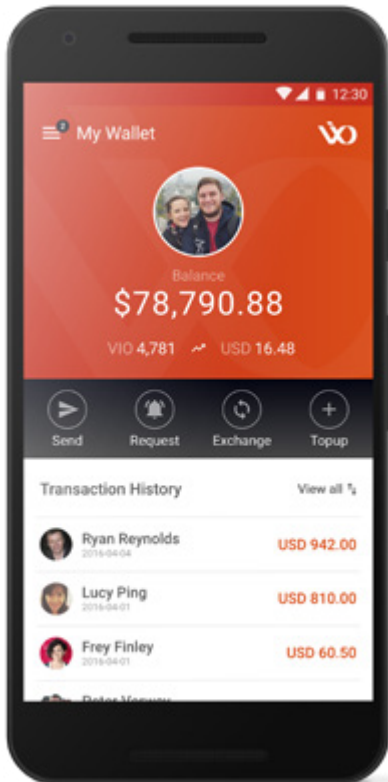
User Experience

(International P2P Transfer)
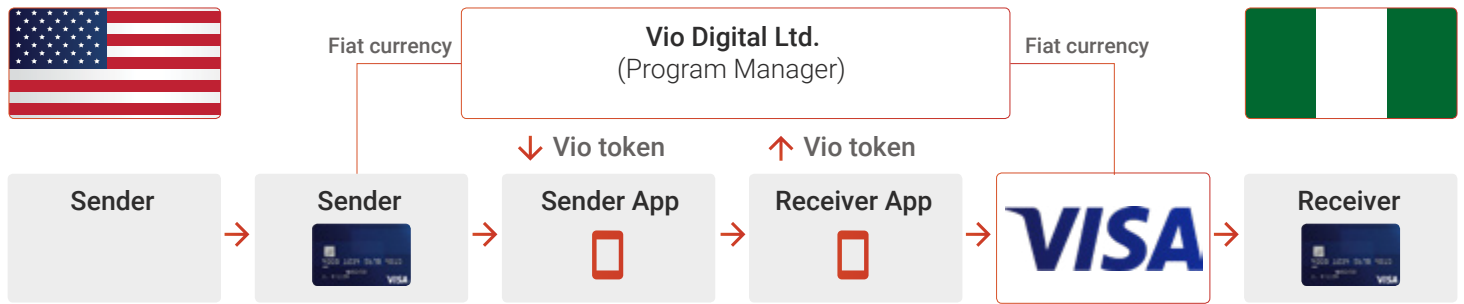
1. User registers profile and links Visa Debit card
2. User obtains Vio tokens from either:
   - Top-up using Visa/MasterCard Card to buy In App

   or
   - Digital currency exchange where tokens are listed

   or
   - Receives tokens from other registered App users
3. User App sends Vio tokens to Receiver via Ethereum blockchain transaction (domestically or internationally, either to another profile or wallet address)

4. Recipient User App is credited with Vio tokens to app Wallet.
5. Receiver submits request to convert Vio tokens to fiat at daily exchange rate.
6. Vio converts Vio tokens to fiat Currency.
7. Vio uses Visa Direct transaction to disburse fiat currency directly to Recipient Users Visa Debit card.

Functionality by market

Country	Wallet	Top-up	Exchange
Launch: - Nigeria - Ghana - Kenya - Cameroon	✓	✓	✓
- Global	✓		
Roadmap			
- United Kingdom - South Africa - Mauritius - Morocco	✓	✓	✓
- United States - United Arab Emirates	✓	✓	

Transaction limits

The below transaction velocity limits apply to the following functionality:
- Exchange: Converting Tokens to fiat into debit card via Visa Direct
- Top-up: Purchasing Tokens (via Visa Debit Cards)

Transaction limits	Convert to fiat (USD)	Buy Tokens (USD)
Min amount (per txn)	50	50
Max amount (per txn)	1,000	1,000
Max number of txns per week	10	10
Daily limit	2,500	2,500
Weekly limit	5,000	5,000
Monthly limit	10,000	10,000

Transaction Fees

Vio does not charge any transfer fees or have any exchange rate mark-up for the use of its payments transfer service. Instead, revenue will be generated by trading Vio tokens, both on digital currency exchanges and within the Vio app. This revenue will be used to cover all sponsoring Bank and Visa Direct processing related fees.

Program Fees	Fees
Wallet: Send & Receive Vio Tokens domestically & internationally (either to another profile or wallet address)	Free
Exchange: Covert Vio tokens to fiat via Visa Direct	Free

Rate calculations

1. Daily token rate: The daily token exchange rate is calculated as an average of the exchanges that Vio will be listed on and by country-specific market factors such as demand and supply.

2. Fiat FX Rate: Determined directly using the Visa Developer FX API (with no exchange rate mark-up)

Visa Program approval

Visa requires originators of Visa Direct to be a Visa licensed acquirer or be sponsored by a Visa licensed acquirer. Third party service providers who offer push payment services to consumers can be sponsored by a Visa licensed acquirer to offer push payment capabilities to Visa card accounts.

Bank Program Sponsorship

United Bank for Africa Plc is a leading pan-African financial services group, with presence in 19 African countries, as well as the United Kingdom, the United States of America and France. The Bank provides services to over 14 million customers globally, through one of the most diverse service channels in sub-Saharan Africa, with over 1,000 branches and customer touch points and robust online and mobile banking platforms.

Vio has therefore partnered with UBA to deliver the program initially in the launch markets of Nigeria, Ghana, Kenya and Cameroon.

Program approval status

Vio has engaged with Visa over the past year and has obtained Visa Direct program approval for Nigeria, Ghana, Kenya and Cameroon. Expansion to the other 15 UBA African markets and additional Global markets post launch will occur on a priority basis, subject to Visa program approval.

Program Roles and Responsibilities

Visa	BIN Sponsor	Processor	Program manager
Payment network	**Access**	**Implementation**	**Delivery**
• Brand	• Ownership and customer due diligence	• Payments and database infrastructure	• Product design and development
• Payment infrastructure	• Compliance with both Regulators and Visa	• Risk and fraud prevention, reporting and tracking	• Product management
• Network access	• Reporting	• Database management	• Marketing
• Merchant and ATM relationships	• Risk monitoring	• Transaction authorisation	• Supply chain
• Set product rules	• Fraud monitoring	• Scheme certification and accreditation	• Technology development and testing
• Funds management	• Anti-money laundering	• MIS creation	• Customer service
• Product level capabilities and restrictions	• Auditing	• Product functionality support	• Risk and analytics
• Value-added offerings	• Record retention guidelines	• Velocity controls	
• Chargeback and dispute rules	• MIS analysis	• Fee structure	
• Cardholder usage data	• Settlement and reconciliation	• Dispute management	
• Global relationships			

Vio Token

With the advent of token technology, innovative applications built on top of blockchain technology can be created utilising pre-existing crypto infrastructure.[3] Vio leverages blockchain technology, in combination with Visa Direct, to build a digital P2P remittance platform through the use of a token.

Built on the Ethereum blockchain as an ERC20 token, the Vio token will enable users to transact on the transfer platform and send money internationally. Vio will create and issue 100 million utility tokens that provide access to

P2P remittance services in a decentralised, token-based platform. These tokens represent a unit of account within the platform. The total number of tokens is also fixed, ensuring no inflation in the total supply.

As the size of the user base on the transfer platform and transaction volumes within it grows, this will create demand for the tokens. The primary value of the Vio token will therefore be related to the adoption of the remittance platform and on the demand from users driving the usage of the tokens to originate remittance transfers.

Token Terms

1 Billion (Vio) ERC-20 tokens will be created programmatically using a smart contract that will be audited before the token sale occurs. The smart contract makes use of the OpenZeppelin framework.

The Vio token supply will be transferable immediately after the ICO. The majority of tokens are to be made available to maintain liquidity and settlement within the Vio platform.

Total token supply: (1 Billion) Vio, of which:

- 25% sold in the tokensale
- 25% to cover development and tokensale costs
- 25% to provide platform liquidity and settlement
- 25% retained by company
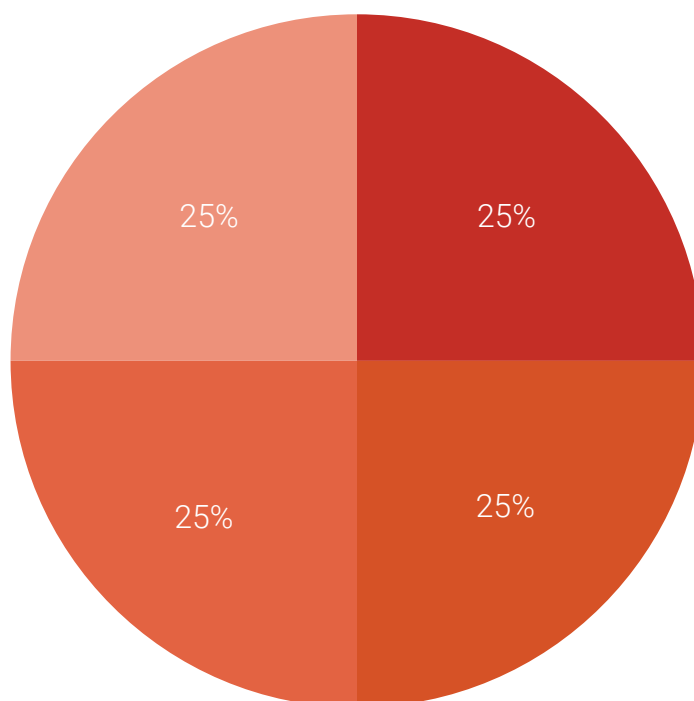
Roadmap Benchmarks

Launch: Early 2018

Q1 2018
Vio Version 1.1 App (Android and IOS app)

Q2 2018
Vio Version 1.2 Top-up in App (via Visa/MC Cards)

Q3 2018
Africa Expansion
(key markets: South Africa and Mauritius)

Q4 2018
Global Expansion (key markets: USA, UK and UAE)

Disclaimer

This material is provided by Vio Digital, Ltd. ("Vio", the "Company"), for informational purposes only and is not an offer or a solicitation to buy or sell any securities or other financial instruments. The Vio token is a utility use product enabling the services provided by the Vio transfer platform, as detailed above. Vio tokens are not intended for speculation and afford the holder no rights in, or claims to, any of the assets of Vio or to in any way share in any profits that Vio may achieve. Interested parties acknowledge agreeing to the Consent to Use Electronic Records, Privacy Policy and Terms and Conditions. This document is subject to change and must be accompanied by the previously agreed to documents, which remains in effect regardless of purchase decisions.

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