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Stored- Value Card as a means for money transfer and the implications for the current agent model

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Abstract

There are a plethora of methods for remitting money to international destinations allowing senders to pay using various payment instruments such as credit/debit cards, cash in-store, and credit/debit/ACH online. In fact, the recent ubiquitous nature of API's connecting remittance organizations to the bank accounts of recipients in real time has reduced the time and the cost of remittance, but none of the existing methods and processes have been able to solve one of the major problems that remittance organizations, senders, and regulators face. The incidence of agent churn and transaction cancellations as a result of low incentives for agents and the fear of chargeback respectively continue to plague the traditional agents model and online transfer methods. The primary objectives of this new method will address the agent churn by making remittance attractive again, but with less work for agents, after all, the majority of immigrants still prefer to go to agent location to send money. This new method and process will also address the major concerns of senders who face untold obstacles and psychological trauma as a result of rejection when trying to use their debit/credit card to pay for transactions. Remittance organizations go through extraordinary length to prevent chargeback, but the majority of consumers are legitimate senders, but unfortunately, the verification process cascades through the system thereby making the act of sending money a probabilistic chance instead of guaranteed. Even more pronounced for new users. This new process assures 100% acceptance on one hand and addresses some of the regulatory challenges of monitoring agents. The need to ensure that agents are in compliance is a major concern for regulators and remittance organizations, and by shifting the responsibility of "sending money" to senders instead of agents, we argue that the burden of sending money is now on senders. The optics of this and the time

saved by stores is presented as a valid argument and major attraction for store owners or gas stations who now may not see themselves as remittance agents but a mere stored value card seller. This may also have a positive regulatory consequence on the definition of agents because they are not sending money technically. This method as described is designed to satisfy the Disclosure rules promulgated under the BSA recordkeeping requirements. Finally, since there is no integration involved except where partners decide to automate data pooling from our system, we argue that time to market can be achieved within 30-45 days range.

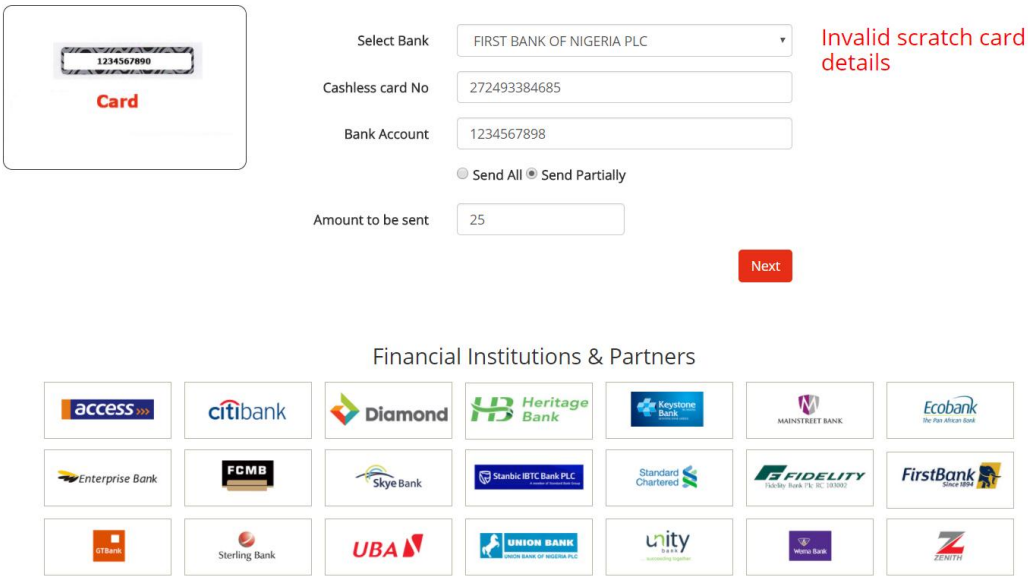


Figure 1. Stored value card use case

Since the advent of international remittance, a lot has changed in the manner and methods of sending money across the border. In the past and now, agent network is very vital in the overall process. Without a good network of agents, a remittance company cannot be competitive. The role of agents is so crucial that some remittance organizations still seek exclusivity, while the new entrants are open to agent sharing. Agent sharing is beneficial but also invite competition. Agents help the remittance service providers to interface with senders and recipients of money in their community, collect money and send the money using the system provided by the remittance organizations.

The very act of sharing agents has led to hyper-competition and with competitions comes the need by agents to decide which service to present to senders. While this may not be

communicated to remittance organizations, it's a daily occurrence among many agents. The decision to recommend a particular service provider is predicated upon a few factors namely:

I. Commission

II. Platform ease of use. i.e. time to complete transaction

III. Speed of payout

Agents will favor remittance organizations that pay them higher commission than those that pay low commission. The commission factor is well understood and documented, but the time spent to process the transaction is critical as well. If the commission of two remittance providers is the same, then agents will consider the second factor; platform ease of use. The 3rd factor, i.e., the speed of payout is deemed to be last, but equally crucial because agents serve the community and most of their customers are familiar because they go to the same house of worship or communal events. In effect, they don't want senders to be calling them about the status of a transaction that was sent days ago.

This new process address all the factors above. Because the aggregate effort to send money using this method will be significantly less, the remittance organization can afford to pay agents high commission. Since agents will receive high commission and spend about 10% of normal time to service customer, they are automatically incentivized to direct senders to the product. In this scenario, we argue that the value of the commission to an agent can be different even when two remittance organizations are competitive. For example, if remittance organizations A (stored value card) and B (traditional way of sending money) offer $5 commission to agents on a transaction of $200, the probability of agents recommending this

product is significantly higher. This is so because they have to only activate and hand over the card to the customer, so they can continue to attend to other customers who are there to patronize the agent's core business such as ethnic food stores or gas station convenience stores. In this scenario, $5 commission from the remittance organization A is significantly more valuable than $5 commission from the remittance organization B. One can deduce from this analogy that the stored value card possess a significant threat to the traditional agent model.

If we assume that the behavior of the agents is determined solely by the commission/time needed and that time/commission are independent

A conditional statistical analysis of how agents will react when faced with slight more commission, less time in completing a transaction is shown in the formula below.

There are 100 agents/stores in a city of USA

There 100 customers that live in the same city and have access to the 100 agents/stores equally to send money over the next 31 days
There are 4 money transfer companies A, B, C, D in each of those stores. I.e customer or agent/store can decide to use the system of either of the 4 remittance provider to send the money for the customer.
Assuming that each of the money transfer company can send money to all the destinations that the customer wants

A- 100 Customers wants to send $100 to their mother
Money Transfer Company: A fee is $5
Money Transfer Company: B fee is $5
Money Transfer Company: C fee is $5
Money Transfer Company: D fee is $5

Time to process the transfer:
Money Transfer Company: A 15 minutes
Money Transfer Company: B 15 minutes
Money Transfer Company: C 15 minutes

Money Transfer Company: D 2 minutes

Commission that the agent can earn
Money Transfer Company: A $2.50
Money transfer company: B $2.50
Money Transfer Company: C $2.50
Money Transfer Company: D $2.50

Questions:
1-If 100 customers visit these agents over the next 31 days, what is the probability that remittance service A, B, C, or D will be chosen by customer?
they pick by time then by commission
So
1. Simple Probability function: $P(A) = P(B) = P(C) = 0, P(D) = 1$
If they pick by time, but the probability is inversely proportional to time:

2. Probability function: $P(A) = P(B) = P(C) = \frac{\frac{1}{15}}{\frac{1}{15}+\frac{1}{15}+\frac{1}{15}+\frac{1}{2}} = \frac{2}{21}, P(D) = 1 - P(A) - P(B) - P(C) = 1 - \frac{2}{21} - \frac{2}{21} - \frac{2}{21} = 1 - 3 * \frac{2}{21} = \frac{5}{7}$

Or

$$P(D) = \frac{\frac{1}{2}}{\frac{1}{15}+\frac{1}{15}+\frac{1}{15}+\frac{1}{2}} = \frac{5}{7}$$

2-If 100 customers visit these agents over 31 days, what is the probability that remittance service A, B, C, or D will be recommended by agent to customer
they pick by time then by commission
So
1. Simple Probability function: $P(A) = P(B) = P(C) = 0, P(D) = 1$
If they pick by time, but the probability is inversely proportional to time:

2. Probability function: $P(A) = P(B) = P(C) = \frac{\frac{1}{15}}{\frac{1}{15}+\frac{1}{15}+\frac{1}{15}+\frac{1}{2}} = \frac{2}{21}, P(D) = 1 - 3 * \frac{2}{21} = \frac{5}{7}$

B- 100 Customers wants to send $100 to their mother
Money Transfer Company: A fee is $5
Money Transfer Company: B fee is $5
Money Transfer Company: C fee is $5
Money Transfer Company: D fee is $5

Time to process the transfer:
Money Transfer Company: A 15 minutes
Money Transfer Company: B 15 minutes
Money Transfer Company: C 15 minutes
Money Transfer Company: D 2 minutes

Commission that the agent can earn
Money Transfer Company: A $1.50
Money transfer company: B $1.50
Money Transfer Company: C $1.50
Money Transfer Company: D $3.00

Questions:
3-If 100 customers visit these agents over the next 31 days, what is the probability that remittance service A, B, C, or D will be chosen by customer?
they pick by time then by commission
So
1. Simple Probability function: $P(A) = P(B) = P(C) = 0, P(D) = 1$
If they pick by time and the probability is inversely proportional to time:
2. Probability function: $P(A) = P(B) = P(C) = \frac{\frac{1}{15}}{\frac{1}{15}+\frac{1}{15}+\frac{1}{15}+\frac{1}{2}} = \frac{2}{21}, P(D) = 1 - 3 * \frac{2}{21} = \frac{5}{7}$

4-If 100 customers visit these agents over 31 days, what is the probability that remittance service A, B, C, or D will be "recommended" by agent to customer
they pick by time then by commission
by time :
1. Simple Probability function: $P(A) = P(B) = P(C) = 0, P(D) = 1$
If they pick by time, but the probability is inversely proportional to time:
2. Probability function: $P(A) = P(B) = P(C) = \frac{\frac{1}{15}}{\frac{1}{15}+\frac{1}{15}+\frac{1}{15}+\frac{1}{2}} = \frac{2}{21}, P(D) = 1 - 3 * \frac{2}{21} = \frac{5}{7}$
by commission:
2.a
Simple Probability function:
$P(D) = \frac{5}{7}$, it stays the same because we have only one such Money transfer company with such time
As the commission for A,B and C are the same, their probabilities stay the same:

$$P(A) = P(B) = P(C) = \frac{2}{21}$$

Note. If the A would have the lowest fee between A, B and C then

$$P(A) = \frac{2}{21} + \frac{2}{21} + \frac{2}{21} = \frac{2}{7}, P(B) = P(C) = 0$$

Or

$$P(A) = 1 - P(D) = 1 - \frac{5}{7} = \frac{2}{7}$$

2.b If they pick by time, but the probability is inversely proportional to time:
Probability function:

$$P(A) = P(B) = P(C) = \frac{1.5 * \frac{1}{15}}{1.5 * \frac{1}{15} + 1.5 * \frac{1}{15} + 1.5 * \frac{1}{15} + 3 * \frac{1}{2}} = \frac{1}{18},$$

$$P(D) = 1 - 3 * \frac{1}{18} = \frac{5}{6}$$

Figure 2. Agent Behavior

The problem has many layers and ways of looking at it. However, we focus on time to complete a transaction and commission to agents. So the probability of picking the fastest time in Q1 and Q2 is the highest - that is agents and customers want the fastest possible time. In Q3 all commission to agents are the same so again, time took precedence over other factors, so agent went for option D. Q4 the agents really prefer D much more strongly. Agents and Customers like D more than any other remittance provider, therefore agents are more likely to recommend D. The result merely confirms what we could have guessed, but the statistics quantify the result.

Figure 3. Probability as a function of Time

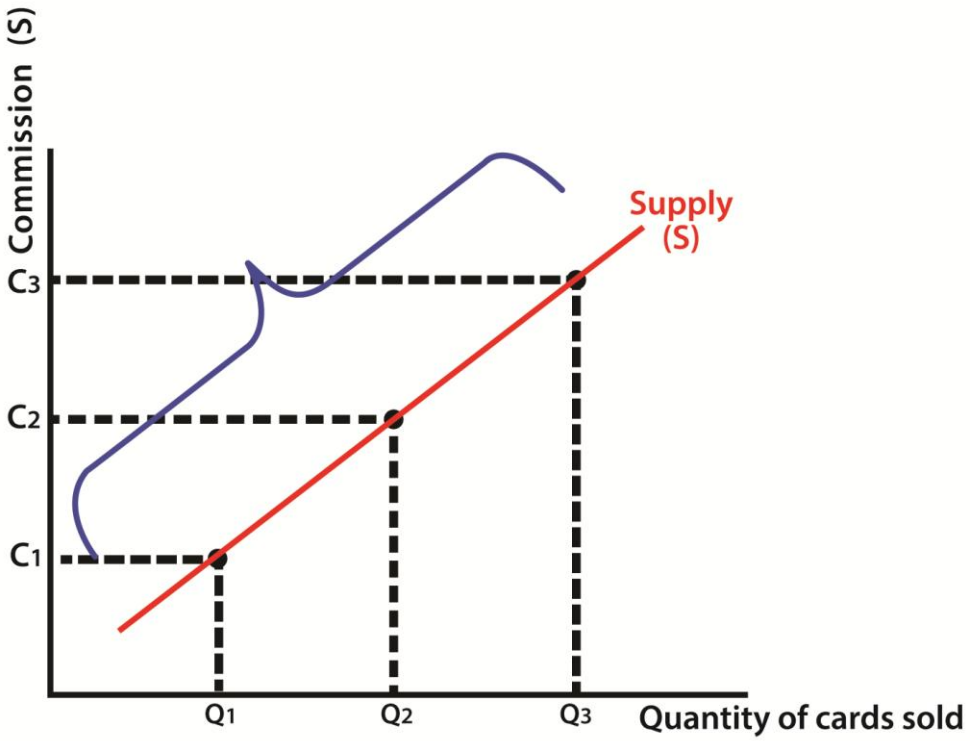


Figure 4. Number of Cards sold as a function of Commission

We can conclude that agents will be biased towards remittance organizations that offer this card. In fact, if the remittance organization that offers this card covers comparable more corridors than others, one can argue that agents will find it a worthwhile business economic decision to discontinue the relationship with the other remittance organizations. This makes sense because the value proposition is significantly lower than the remittance organization that offers the card as a means of sending money. Irrespective, we are confident that the reduction in time needed to service customers will drive up the demand for the product over others. Also, the

higher the commission paid to agents or store per card, the higher the number of agents/stores that'll be interested in carrying the product.

This chart describes Commission (C1...C3) vs. Quantity of cards sold. We argue that the higher the commission paid to agents/stores, the more cards they will sell because there is economic incentive to do so, and propensity towards offering the card compared to the other alternatives.

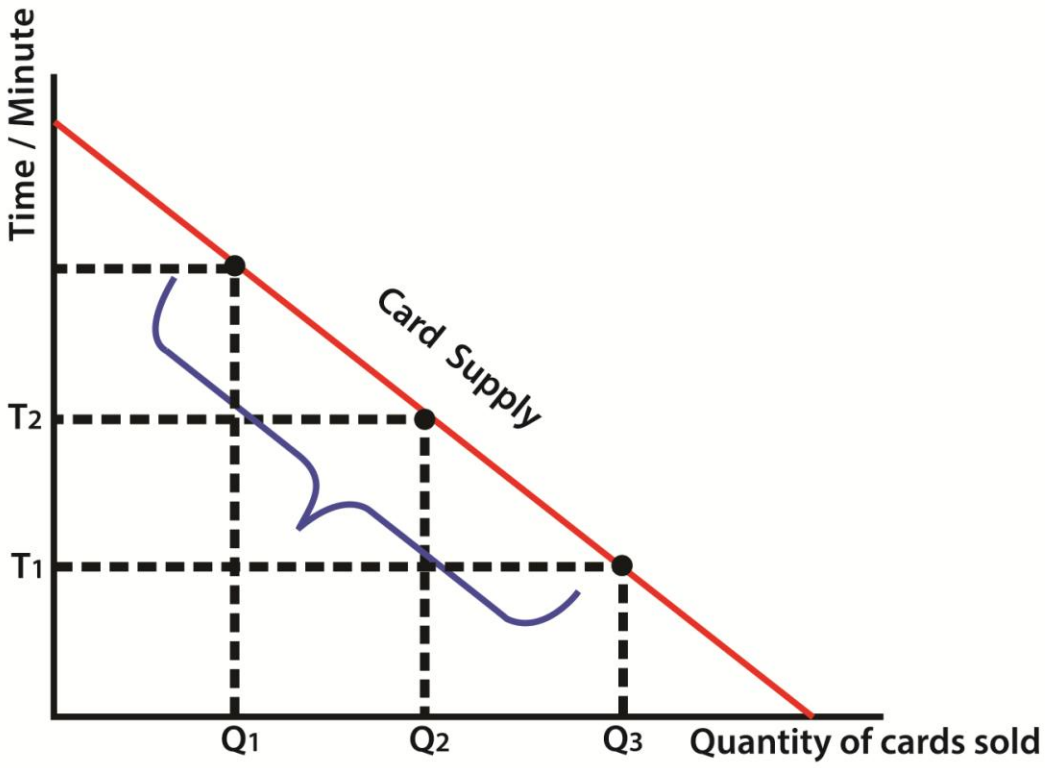


Figure 5. Numbers of cards sold as a function of Time spent with senders

This chart describes Time (T1... T3) spent servicing customers vs. Quantity of cards sold or remittance volume. We argue that the fewer minutes the agents spend with customers, the higher the number of customers they can service and the larger the volume that will come from the agents. In essence, Time is inversely proportional to the number of cards sold. This is so because agents/store want to be able to go back to servicing customers that come in to patronize their core business and not remittance service.

Security

The card instrument has no value until activated by the cashier. This implies that the risk exposure is negligible because inactive cards cannot be used. To activate the card, the cashier has to access the interface provided at which point the system knows which cashier/agent and which remittance organization this card belongs to. Above is a diagram that describes how cards are locked to remittance organization.

The card is locked to remittance organization that distributes to the store/agent. Even if the server is hacked, the card information is encrypted, and secondly, the logic for activation can only be triggered by an agent only after receiving the payment to back up the card.

All transactions pass through https protocol. Server infrastructure is hosted in a secure location that requires biometric accessibility.

Compliance

Sender

As noted by (News Dispatch, Inc., 2012), regulators worry about consumer protections where transfers go awry by requiring providers to investigate disputes and remedy errors. Apart from this factor, regulators worry about money laundering equally. The fundamental requirement of any AML compliance is preventing the service from being used for money laundering. Money launderers are not inclined to use a system that has automated the quantity of prepaid card instrument and the total amount of money they can send per day/weekly/monthly. The system allows remittance organizations to set these limits based on their internal AML procedure. Store/agents cannot override such settings, so remittance organization need not worry about making agents comply. The system does the compliance. Concerning KYC, the primary objectives are to have the identification of the individual sending the money and whom they are sending the money to. As a prerequisite for using the card, the system requires the first, last name, email or mobile phone of the sender. The sender can also enter the type of ID they have, issuing authority and expiration dates. This information is required only once unless the system detects that the Identification has expired during which the system will require the sender to enter current identification information. For each AML triggers, the customer must now upload their photo identification for verification with the information entered prior. It should be noted that the system will not allow a sender to send over and above the limits set by the remittance organization, however, the system takes it a step further to log suspicious activities for further review.

As explained by (News Dispatch, Inc., 2010), under the recordkeeping rule, if the amount is $3000 or more, the financial institution must retain the following data points for transmittals of funds either the original, microfilmed, copied, or electronic record of the information received, or the following data points: (a) The name and address of the transmittor;

(b) the amount of the transmittal order; (c) the execution date of the transmittal order; (d) any payment instructions received from the transmitter with the transmittal order; (e) the identity of the recipient's financial institution; (f) as many of the following items as are received with the transmittal order: the name and address of the recipient, the account number of the recipient, and any other specific identifier of the recipient; and (g) if the transmittor's financial institution is a non-bank financial institution, any form relating to the transmittal of funds that is completed or signed by the person placing the transmittal order.

According (FINCEN, 2017), Bank Secrecy Act (1970) required banks to (1) report cash transactions over $10,000 using the Currency Transaction Report; (2) properly identify persons conducting transactions; and (3) maintain a paper trail by keeping appropriate records of financial transactions. The card product has inbuilt splitting detection to prevent Structuring. ("Structuring," n.d.), define this as the practice of executing financial transactions such as making bank deposits in a specific pattern, calculated to avoid triggering financial institutions to file reports required by law, such as the United States' Bank Secrecy Act (BSA) and Internal Revenue Code section 6050I (relating to the requirement to file Form 8300).

Recipient

Traditionally, the only way to verify the Identification of the recipient in many jurisdictions in developing countries is by going to agents (Banks typically) locally to pick up the funds. This system eliminates this in the target market by verifying the ID of the recipient directly with the bank using the recipient's bank account number and names provided by the sender. This ensures that recipients have undergone proper AML/KYC with their bank.

The system will only process transactions that have satisfied the local KYC requirement. Again this process is system to system, so the likelihood of error in judgment is virtually eliminated.

Competition timeline

Upon rollout, competitors are going to react by offering the agents competitive commission. Blindsided by the second and third reason why monetary compensation may not be enough. The agents will then hold on to the second reason of time-saving factor as a reason to continue to prefer remittance organization that offers the stored value card mechanism as a way to send money. Due to the significant time it requires to develop a similar system and knowledgeable local partner to integrate such system, Remittance organization that offers the stored value card mechanism as a way to send money will enjoy considerable market share for a significant amount of time.

Other market

The method and processes explained in this paper can be deployed in other markets such as the EU and North America for transmission of money to the rest of Africa, Latin America and more.

User freedom

Perhaps one of the most underestimated participants in remittance transactions are the senders. Senders value their time. To be a sender, the person must be gainfully employed. Because senders spend a considerable amount of time working, they'll find this product

appealing because it allows them to send money 24/7 with the assurance that it will not be subject to extensive credit card fraud checks which waste their time and rob them of their self-respect. The role of self-esteem cannot be underestimated. Most senders are law-abiding citizens, many are professionals, but unfortunately, the actions of a few bad actors have necessitated stringent reactions by remittance organization to add additional layers of scrutiny to prevent fraud or chargeback.

Senders want to get the money to their family on their terms, and at the time they want their family to receive the money. This process and methods allow senders to enter any participating store, point to a card denomination and pay for the card value and activation fee and leave. The sender can then use the card at the appropriate time at work, at home wherever they may be with full assurance of acceptance.

Multiple use case

Diasporans potentially want to send money to more people than what the remittance organization realizes. The problem is that they've never been given the opportunity to send small amounts to multiple family members due to the high transaction fees and the cumbersomeness of the process. Instead, senders now send a lump sum to the most trusted member of the family to distribute accordingly. The reality is that senders often prefer to keep the amount they sent to sister A, private from brother B. In most Diasporan cultures, senders would prefer a system that allows them to send money to multiple family members independent of each other at a reasonable cost. This method and process allow a sender to send part of the value to multiple recipients at a significantly low fee compared to the traditional way of sending money. This is possible because there is no credit card fee, ACH fee or agent fee involved once the card is

purchased. Also, there will be no need to visit an agent location until the value on the card is depleted.

Distribution

The system allows agents to order for cards from remittance organizations online. The system will route the order to the remittance organization for fulfillment. The system allows for both parties to know when the order has been fulfilled.

Monitoring

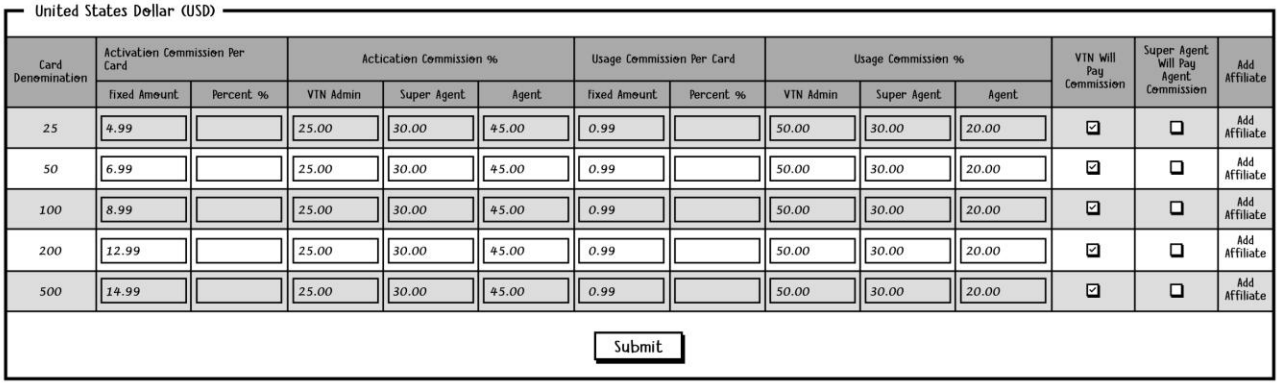
The product has an inbuilt mechanism to know what is going on at a particular store automatically; how many cards they have received, sold and what denominations. The system also tracks card usage. Lastly, the system allows remittance organizations to know how much commission is due to each agent

Customer Support

The product has inbuilt customer support thereby enabling remittance organizations to focus on distribution.

Card activation and usage commission setting

The system allows remittance partner to set the activation fee per card denomination that senders shall pay the cashier. This activation fee shall be shared among the parties such as remittance service provider, agents/stores, and the processor as agreed.


United States Dollar (USD)

Card Denomination	Activation Commission Per Card		Actication Commission %			Usage Commission Per Card		Usage Commission %			VTN Will Pay Commission	Super Agent Will Pay Agent Commission	Add Affiliate
	fixed Amount	Percent %	VTN Admin	Super Agent	Agent	fixed Amount	Percent %	VTN Admin	Super Agent	Agent			
25	4.99		25.00	30.00	45.00	0.99		50.00	30.00	20.00	☑	☐	Add Affiliate
50	6.99		25.00	30.00	45.00	0.99		50.00	30.00	20.00	☑	☐	Add Affiliate
100	8.99		25.00	30.00	45.00	0.99		50.00	30.00	20.00	☑	☐	Add Affiliate
200	12.99		25.00	30.00	45.00	0.99		50.00	30.00	20.00	☑	☐	Add Affiliate
500	14.99		25.00	30.00	45.00	0.99		50.00	30.00	20.00	☑	☐	Add Affiliate

Submit

Figure 6. Example of Super Agent Card activation and usage commission

The processor can also share the commission received with facilitators who marketed the solution to remittance service provider and agents.

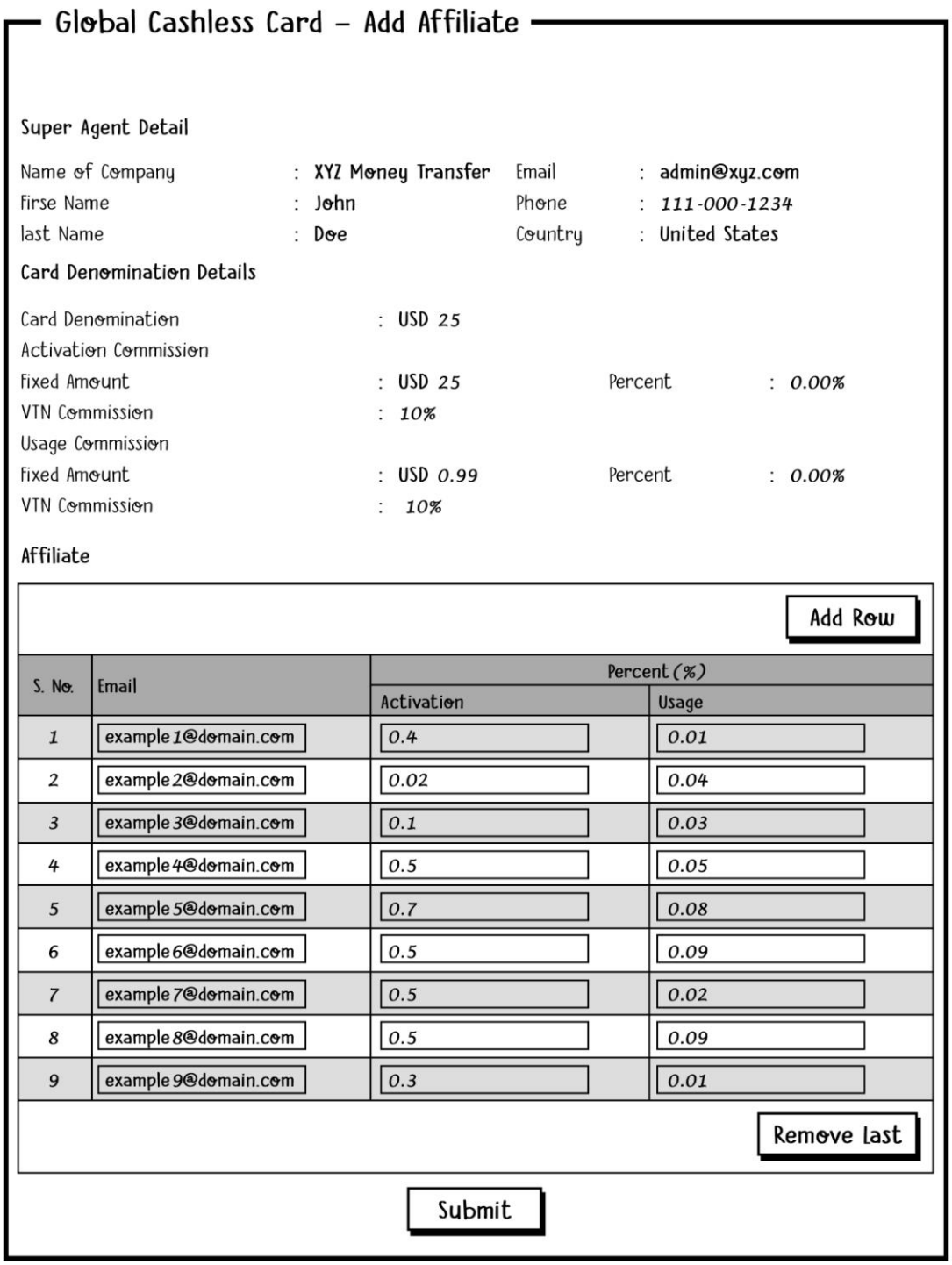


Figure 7. Example of Super Agent Affiliate Commission split

Corporate social responsibility (CSR)

The product allows remittance organization to incorporate Corporate social responsibility as a way to win the favor of the community and at the same time fending off competition. The products enable remittance organizations optionally set a fraction of their commission to go to a not for profit organization of their choice.

Conclusion

The storing and redeeming of value from stored value cards is not new. The primary function of stored value card is to digitize cash in an electronic form. The value is then requested for when there is need to use it. What is different in this case is that physical or electronic stored value is merely an entry point to the system. The appeal of stored value card as a familiar tool can help solve one of the fundamental problems that remittance organizations, agents, and senders alike faces today. The application of this method and processes are not limited to remittance only. The main problem that the processes and methods solve is a significant reduction of the time required by agents to complete a transaction. Furthermore, it allows senders to send money cost-effectively at a fraction while ensuring that remittance transactions will be accepted whenever the sender is ready to send the money. It has the potential to redefine the role of agents fundamentally, and this may mean a relaxation of regulatory burden on delegate agents. Allows remittance service providers to spend less on agent recruitments and training and be very competitive among other remittance organizations. It has the potential to pose a formidable

competition to existing traditional agent model. The processes and methods also assure compliance with AML and KYC requirements effortlessly.

References

FINCEN. (2017). History of Anti-Money Laundering Laws. Retrieved from https://www.fincen.gov/history-anti-money-laundering-laws

News Dispatch, Inc., F. (2010). *Financial Crimes Enforcement Network; Cross-Border Electronic Transmittals of Funds: Federal Register Extracts* [Peer commentary on the journal article "Financial Crimes Enforcement Network; Cross-Border Electronic Transmittals of Funds: Federal Register Extracts" by]. *Treasury Department Documents and Publications; Lanham*, . Retrieved from https://search-proquest-com.ezp-02.lirn.net/pqrlbusiness/docview/755782840/abstract/7ECA5E32873E4B57PQ/13?accountid=143980

News Dispatch, Inc., F. (2012). *Electronic Fund Transfers (Regulation E): Federal Register Extracts* [Peer commentary on the journal article "Electronic Fund Transfers (Regulation E): Federal Register Extracts" by]. *Federal Government Documents and Publications; Lanham*, . Retrieved from https://search-proquest-com.ezp-02.lirn.net/pqrlbusiness/docview/920119919/abstract/7ECA5E32873E4B57PQ/2?accountid=143980

Structuring. (n.d.). In *Structuring*. Retrieved October 10, 2017, from https://en.wikipedia.org/wiki/Structuring