INFOSYS BPO LTD.

Consultation Paper on Quality of Service requirements for delivery of basic financial services using mobile phones

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ISSUES FOR CONSULTATION

Suitable method of communication

There are various options, as highlighted in the consultation paper, available for providing financial transaction services. We have attempted an analysis of all the options to logically arrive at the best possible scenario in India.

Sr. No.	Option	Advantages	Limitation
1	SMS	• Can be deployed on almost all types of phones. • Can be used across both the GSM and CDMA technology. • Handset /Technology agnostic • Most widely used data application	• No well defined time for delivery. • The delivery can be delayed to a great extent. • No/Low encryption, as of now • Limitation with respect to usage of characters (160)
2	IVR	• Customer friendly, better customer experience • Handset /Technology agnostic • Can be automated as well as manual • Can support various languages	• Operations are quite costly • No record at the customer end • Delayed response in case of longer Q
3	STK	• A standard of the GSM system • Can be used for various VAS • Driven by specific command hard burnt on the SIM • The updates can be delivered OTA • Specified standards for both 2G and 3G (USIM) • Data encryption is possible • Possibility of extending for CDMA • STK has been deployed on largest number of mobile devices • Can support various languages • Being used in some countries	• Difficult to change STK application • Exchanging SIM is cumbersome and costly affair • No multimedia support
4	WAP	• Anytime anywhere access for the customer • Best suited for all types of complex transaction • Almost close to internet services	• User needs to be more skillful to use these services • All handset do not support WAP • Connectivity/coverage issue
5	USSD	• Longer (182 characters) messages • Real time (instant messaging) connection during USSD session • Open and two way exchange between phone and server • Being used in some countries	• No storage of message • USSD not available on CDMA • No standardization, not secure • Risky due to open connection

As can be seen from the above table, the two most preferred access channels are STK and USSD in the mobile commerce arena. Considering the diversity within our country and mandatory 5 basic transaction requirement we have further attempted an analysis of above channels in addition to JME and NFC:

	STK	SMS	USSD	IVR	WAP	Web	JME	NFC	Comments
Security	X			X	X	X	X	X	End to End encryption
Device changes	X							X	SIM/Device replacement or modification
Merchant Payment Initiation / Authorization	X			X	X	X	X	X	
Cash In / Cash Out	X				X	X			Retailer initiated /assisted cash in
Bill Pay / Money transfer	X			X	X	X			
Receipts		X							
Confirmation	X	X							
Balance Enquiry	X	X	X	X	X	X			
Mini Statements	X	X	X	X	X	X			
Reports					X	X			Transaction details for a period
Pin reset				X					
Pin change	X				X	X			

Based upon the careful analysis, we are of the view that in the present scenario STK would be a better option suited for our requirement with SMS as message carrier and IVR for both helpdesk as well as resetting of PIN for ensuring the security and safe custody. The transaction would be initiated by the customer (or correspondent) by its mobile phone through STK menu which will be carried over the mobile network. The transaction would hit the transaction platform which will authorize it and trigger the SMS to all the concerned parties for its success or failure as the case may be.

The customer can navigate through IVR so as to do most of the transaction in addition to reset the PIN. The customer care, therefore, needs to be adequately configured and staffed.

Time frame for delivery of messages

Whatever be the access channel selected, we have to make sure that transaction is reported to all the concerned parties on real time basis. This appears to be a big challenge. However, we have to build our network in such a manner that it is not delayed beyond a couple of minutes. It is also imperative on our part to bring this to a near real-time basis in case we intend this mode of commerce to be used at any point of sale where customer footfall is high and delay in delivery of message can create a hu8ge queue at its cash counter.

This is required to make sure that parties are satisfied and they are interested in making such transaction. In case of abnormal delay in response, the customer may be forced to initiate duplicate transaction with the previous transaction already in pipeline.

In addition, the STK suggested above would help the customer to check the menu and consequently mini statement or balance enquiry. That will also give him/her a level of comfort for transaction.

Possibility of prioritization of messages

It is difficult to comment if the SMS can be prioritized on the all the network as it will require a dedicated route to be created and can have severe cost implication. In the method suggested by us, the MSISDN would interact with the transaction platform through STK and once the transaction has been initiated, the customer can always check its success or failure through STK menu even if the SMS is not delivered.

In case of fair need, we can plan a dedicated SMSC (with redundancy) for routing these transactions by tagging the short code with the dedicated SMSC. There is also a possibility of changing the origination type of the SMS for financial transaction which can give higher priority. However, it will require modification in many of the networks. It is needless to say that as such no specific priority mechanism is readily available in any of the network (GSM/CDMA). Nonetheless, it will be worthwhile to research and invest more in this area so that we can arrive at logical conclusion.

Considering the future business potential, we are of the opinion that this cost can be borne by the service providers as it would ultimately help them in getting more business.

As indicated earlier, we need to create an IVR also so that handholding can be provided to the customer, as a matter of last resort.

Security requirement

The security requirements are the paramount importance while we were thinking of large scale small value transaction. To make sure that we do not slip on these, following are recommended as part of the system architecture and business rules:

1. The transaction should happen over robust platform with integrity.
2. The customer needs to authenticate every transaction by using mobile PIN (4-6 characters).
3. The first transaction should be allowed only after changing the PIN provided by the Mobile Operator.
4. The mobile PIN should remain encrypted with triple DES, end-to-end.

5. The accounts should be opened after verifying the KYC documents as specified by the RBI. The documents should be such that we can attract more customers.
6. We need to specify the daily/weekly/monthly/yearly limits for different types of transactions so that we can avoid AML as well as someone trying to perpetrate fraud.
7. The transaction over the network from the subscriber's mobile phone to the Transaction platform should be encrypted.
8. Transaction monitoring or Fraud Management system which can trigger any suspicious activity with any account /transaction.

Measurable QoS

The measurable QoS parameters for both network and customer are captured in the following table:

Network / System	**Parameters**
Time taken to deliver the confirmation SMS	99.95% within 2 minutes
Transaction update on the system	Real-time (this will help the customers to check the success of transaction through STK even if its delivery is failed)
Ease of navigation of the STK	100% within 1 minute
Failure of financial transaction	Less than 0.05% (success rate of 99.95%)
Failure of non financial transaction	Less than 1% (success rate of 99%)
Uptime of the network	A minimum of 99% meaning that customer is able to originate the transaction and do not face the problem of any congestion
Loading capacity of the system supporting the transaction (on per minute basis)	It will depend upon the customer base and number of expected transaction. The idea is that there should not be any queue beyond one minute.
Language supported by the system	All languages, as specified by the regulator. (to begin with 15 languages on the currency note)
Fraudulent transaction	Generating alarm based on velocity, limit breach etc. for suspected/ fraudulent transaction

Customer	**Parameters**
Time taken to accept the new customer	Less than 4 hours
Delivery of STK enabled SIM to the customer	Less than 4 hours
Charges recovered from customer for different category of transaction	Less than 0.1%
Response at the IVR / Time to reach the customer care agent	Within 2 minutes. The calls should not be charged.
Language supported by the IVR	All languages, as specified by the regulator. (to begin with 15 languages on the currency note)
Distance travelled by the customer for direct transaction	Less than 1 Km
% of Merchants registered for the services	>10% of the area
Resolution of complaint	100% within 7 working days

Merchant dispute redressal	100% within 7 working days with equivalent disputed amount put on hold

Other important issues

There are some more issues, highlighted below, for making the things work the way they are intended:

Convergence of players and services

There is no doubt that we cannot unleash the power of mobile money without ensuring convergence of various service providers i.e. MNO and Banks. For this to happen, we need to foster healthy relationship between these two important constituents. They need to come together and leverage their respective advantages i.e. understanding the broader consumer market (MNO) and a variety of financial product (Bank).

By bringing a large number of players under one umbrella would ensure that the model reaches the critical mass at a shorter period of time, people are able to transact effortlessly, cost of operations are minimized and scale of economies are achieved.

Regulatory environment

As of now the money part is regulated by the RBI and the mobile by the TRAI. There is a strong need to have a common platform by bringing together both the regulators so that a large number of issues which are on the periphery of both the regulators can be addressed in the most effective manner.

For example, both the regulators have different KYC requirement. To enable more people participate in this process, we need to arrive at a consensus for various types of acceptable document, rules with regard to AML/CFT, limits for daily/monthly operations, velocity checks, grading of customers (high/medium/low risk) etc. We firmly believe that we will defeat the whole purpose if we apply the similar set of rules as applicable in banking and non-banking (NBFC) environment.

Developing partners

In the eco-system of mobile money, the customer faces and interacts primarily with the BC /Agent / Retailer and the Merchant. So in order to make it work, we have to bring these partners on-board or else our efforts would be futile in propagating the product as well as ensuring QoS.

If we particularly look at the broader canvass which includes poor people and agrarian masses, their trust and comfort level with the facilitators would help us surpass most of the obstacles. So we need to carefully select the partners based on agreed set of parameters and continue to educate them on the complexities of the entire eco-system considering that it would be the future of financial services, atleast in the hinterland.

List of abbreviations used

Sr. No.	Abbreviation	Expansion / Meaning
1	SMS	Short Messaging Service
2	IVR	Interactive Voice Response
3	SIM	Subscriber Identification Module
4	STK	SIM application Tool Kit
5	WAP	Wireless Access Protocol
6	USSD	Unstructured Supplementary Service Data
7	J2ME	Java 2 Platform Micro Edition
8	GSM	Global System for Mobile communication
9	CDMA	Code Division Multiple Access
10	VAS	Value Added Services
11	OTA	Over The Air (used for updating STK)
12	NFC	Near Field Communication
13	QoS	Quality of Service
14	MNO	Mobile Network Operator
15	KYC	Know Your Customer
16	CFT	Combating Financial Terrorism
17	AML	Anti Money Laundering
18	NBFC	Non Banking Financial Companies
19	BC	Business Correspondent
20	RBI	Reserve Bank of India
21	TRAI	Telecom Regulatory Authority of India