



Telecom Regulatory Authority of India



**Consultation Paper on
the review of regulatory framework for the use of USSD
for mobile financial services**

New Delhi, the 2nd August, 2016

Stakeholders are requested to furnish their written comments by 31st August, 2016 and counter-comments by 14th September, 2016 to the Advisor (F&EA), TRAI. The comments and counter-comments may also be sent by e-mail to advfea1@traigov.in. Comments and counter-comments would be posted on TRAI's website www.traigov.in. For any clarification/ information, Smt. Vinod Kotwal, Advisor (F&EA), TRAI, New Delhi may be contacted at Tel. No. +91-11-23230752, Fax: +91-11-23236650.

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Chapter-I

Introduction and Background

A- Financial Inclusion

- 1.1. The expansion of banking and reach of financial services is considered to be vital for the long-term sustainable development of any country¹. Hence, it has been a constant endeavor of the regulators and the policymakers around the world to achieve greater financial inclusion in their respective countries². In India, the objective of financial Inclusion is to extend financial services to the large hitherto un-served population of the country to unlock its growth potential³. In addition, it strives towards a more inclusive growth by making financing available to the poor in particular⁴.
- 1.2. RBI, in its Annual Policy Statement of April 2005, urged banks to review their existing practices to align them with the objective of financial inclusion; it advised all banks to make available a basic banking 'no frills' account⁵ that could be operated with a nil (or very low) balance at a charge that would make such accounts accessible to vast sections of the population. In subsequent years, the Government and Reserve Bank of India (RBI) have undertaken a range of initiatives to drive forward the financial inclusion agenda in the country. Some of the initiatives taken by the Government⁶ and RBI are, *inter-alia*, as follows⁶:
- (i) **Expansion of bank branch and ATM network in the country:** The number of branches of Scheduled Commercial Banks (SCBs) increased from 90,896 as on 31.03.2011 to 125,857 as on 31.03.2015. During this period, number of ATMs deployed by SCBs increased from 75,645 to 1,84,221.

¹ Achieving Sustainable Development and Promoting Development Cooperation– Dialogues at the ECOSOC, United Nations New York, 2008

² State of financial inclusion policy in developing countries, The AFI survey on financial inclusion policy in developing countries: Preliminary findings, Alliance for Financial Inclusion (AFI), April 2010, & UNSGSA Report to Secretary General September 2015

³ <http://financialservices.gov.in/banking/overviewofefforts.pdf> accessed on 19/07/2016

⁴ Microfinance India: State of the Sector Report 2013 By Tara Nair, Ajay Tankha, SAGE Publications India

⁵ Subsequently, through a circular dated 10.08.2012, RBI advised all the scheduled commercial banks excluding Regional Rural Banks (RRBs) to convert all the 'no-frills' accounts into 'Basic Savings Bank Deposit Accounts'. Source: <http://www.rbi.org.in/scripts/NotificationUser.aspx?Id=7501&Mode=0>

⁶Source:

financialservices.gov.in/banking/Overview%20and%20Progress%20on%20Financial%20Inclusion%20.pdf

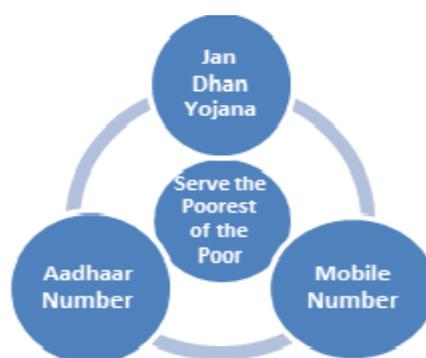
- (ii) **Increased focus on opening Branches in rural areas:** RBI has advised banks that while preparing their Annual Branch Expansion plan, the banks should allocate at least 25 percent of the total number of branches proposed to be opened during a year in unbanked rural (Tier 5 and Tier 6) centers.
- (iii) **Expansion of BCA network:** Department of Financial Services (DFS) has advised the banks to extend banking services to the entire geography of the country using the Business Correspondent Agent (BCA) Model.
- (iv) **Direct Benefit Transfer (DBT) and Direct Benefit Transfer for LPG (DBTL):** The Government of India has launched DBT and DBTL schemes with a view to ensure that money under various developmental schemes reaches beneficiaries directly and without any delay.
- (v) **RuPay Card:** NPCI⁷ has launched RuPay, a new card payment scheme with a view to build a card payment network at much lower and affordable cost to the Indian banks so that dependency on international card scheme is minimized. The Government of India has directed banks to issue debit cards to all Kisan Credit Card (KCC) and DBT beneficiaries and that every new account holder should get a debit card.
- (vi) **Pradhan Mantri Jan-Dhan Yojana (PMJDY):** This scheme of the Government envisages, *inter-alia*, universal access to banking facilities with at least one basic banking account for every household.

1.3. Clearly the policy and regulatory thrust for 'Financial inclusion' agenda in the country has been substantial, particularly in the recent past. However, notwithstanding, the expansion of BCA network and thrust on opening bank branches and ATMs in rural areas, the 'last mile' service delivery continues to remain a matter of concern. There were only 7.8 bank branches per 100,000 of population in rural and semi-urban areas, less than half of 18.7 bank branches per 100,000 of population in urban and metropolitan areas as of June, 2015⁸.

⁷ **National Payments Corporation of India (NPCI):** National Payments Corporation of India (NPCI) is a Section 25 Company under Companies Act aimed at creating and operating for the benefit of all the member banks and their customers a high-volume low cost infrastructure for providing payment services.

⁸ <https://rbidocs.rbi.org.in/rdocs/PublicationReport/Pdfs/FFIRA27F4530706A41A0BC394D01CB4892CC.PDF>

- 1.4. Mobile telephony could be the answer to the problems related to 'last mile' service delivery of financial services. The fact that there were about 103.43 crore mobile connections in the country of which 44.78 crore were in rural areas as on 31.04.2016⁹, suggests that mobile telephony can be potentially leveraged to achieve the goal of financial inclusion.
- 1.5. Keeping in view the promise of mobile telephony in improving 'last mile' delivery of financial services, the Government of India envisaged **Jan Dhan - Aadhar - Mobile (JAM) trinity**.¹⁰ Under the JAM trinity, the Government has linked citizen's bank account number and mobile number with Aadhar number with an aim to better target and transfer financial resources to the poor.



B- Background

- 1.6. Mobile telephone has been central to many success stories of delivery of financial services around the world, particularly in the developing countries. Many African and Asian countries have developed thriving mobile banking and mobile money ecosystems around mobile telephone. M-Pesa in Kenya¹¹, Smart Money and G-Cash in Philippines¹², WIZZIT in South Africa¹³ and Easy paisa in Pakistan¹⁴ are some of the successful deployments of mobile banking and mobile money systems.
- 1.7. Keeping in view the success achieved by many countries in delivering financial services through mobile telephone, the Government of India, in November, 2009,

⁹ Rural mobile tele-density was 51.19 as on 31.04.2016.

¹⁰ Economic Survey 2015-16

¹¹ <http://www.economist.com/blogs/economist-explains/2013/05/economist-explains-18>

¹² <http://www.gsma.com/mobilefordevelopment/wp-content/uploads/2012/06/Philippines-Case-Study-v-X21-21.pdf>

¹³ IFC+Wizzit_MobileMoneyMicro-LendingCaseStudy.pdf

¹⁴ <https://www.cgap.org/blog/easypaisa-incentivizing-mobile-wallet-usage-pakistan> Accessed on 29th July, 2016

constituted an Inter-Ministerial Group (IMG) to submit a report and recommendations on the **framework for delivery of basic financial services using mobile phones**. The framework proposed in the IMG report has been accepted¹⁵ as the basis for delivery of basic financial services using mobile technology by a Committee of Secretaries under the chairmanship of the Cabinet Secretary in April 2010. The IMG framework envisages opening of mobile linked 'no-frills' accounts, which would be operated using mobile phones. These accounts would be held by banks and the money would be stored in the banks and not in the users' mobile phones; the customer would be able to perform five basic transactions - cash deposit, cash withdrawal, balance enquiry, transfer of money from one mobile-linked account to another, and transfer of money to a mobile-linked account from a regular bank account. The IMG framework also envisaged compensation to the key players after taking into account the actual costs incurred by them. In the IMG framework, TRAI was expected to provide the required regulatory framework governing the quality of service, provisioning and pricing of mobile services for delivery of basic financial services.

- 1.8. As per the extant guidelines of RBI, banks that are licensed, supervised and have physical presence in India, are permitted to offer mobile banking services. Mobile banking policies in India aim to enable funds transfer from an account in any bank to any other account in the same or any other bank (inter-operability) on a real time basis irrespective of the mobile network the customer has subscribed to¹⁶.

- 1.9. Mobile financial services can be delivered using any of the following communication modes:
 - (i) Interactive Voice Response (IVR)
 - (ii) Short Messaging Service (SMS)
 - (iii) Wireless Access Protocol (WAP)
 - (iv) Stand-alone Mobile Application Clients (Mobile Apps)
 - (v) Unstructured Supplementary Service Data (USSD)
 - (vi) Using SIM tool Kit (STK)

¹⁵ Reference Web-site: <http://deity.gov.in/content/government-approves-framework-provision-basic-financial-services-through-mobile-phones>

¹⁶ RBI/2016-17/17 DPSS.CO.PD.Mobile Banking.No./2/02.23.001/2016-2017 July 1, 2016

- 1.10. A brief description of the afore-mentioned telecommunication channels is given in **Annexure-I**.
- 1.11. From the financial inclusion perspective, the target groups of mobile banking services, in particular, and mobile financial services, in general, are likely to be low-income, semi-literate and with limited knowledge of technological applications. They would, however, be mobile phone users who are able to read simple menus and use simple applications that are an integral part of a phone. To begin with, such consumers would prefer a mode for mobile banking which is user friendly (viz. menu driven but without the need to download software etc.), has a low cost of operation (viz. cost per transaction) and does not require any significant investment (viz. requirement of a high-end phone instrument). A comparison of the potential telecommunication channels (viz. IVR, SMS, WAP, Mobile Apps, USSD and STK), with respect to their suitability for delivering mobile financial services for financial inclusion is presented in **Annexure-II**. The comparative analysis suggests that USSD is a very suitable mode for delivery of mobile financial services for financial inclusion.
- 1.12. USSD messages create a real-time connection during a USSD session. The connection remains open, allowing a two-way exchange of a sequence of data. The twin features viz. (i) **real-time** connection; and (ii) two-way **interactive** exchange of information during USSD session makes USSD channel, an ideal choice for delivery of mobile financial services. It may be noted that the DFS, in June, 2012, wrote to TRAI stating, inter-alia, that USSD is the most convenient means of communication for everyone and requested TRAI to prescribe tariff per USSD session so that the costs become affordable to the under-privileged section.
- 1.13. Subsequent to the laying down of the IMG framework for delivery of basic financial services using mobile phones, various stakeholders have taken several steps towards achieving the goal of financial inclusion as outlined below:
- (i) In November, 2010, National Payment Corporation of India (NPCI) launched Immediate Payment Service (IMPS)¹⁷, an instant, 24X7, interbank electronic fund transfer service through mobile phones and other channels (Internet or ATM).

¹⁷ <http://www.npci.org.in/aboutimps.aspx>

- (ii) In December, 2011, DoT allocated a USSD code *99# to DFS for mobile banking services through the USSD gateway of NPCI and asked the telecom service providers (TSPs) to connect to it as per the requirement of service in consultation with NPCI.
- (iii) In April, 2012, TRAI mandated that every TSP shall facilitate the banks to use SMS, USSD and IVR to provide banking services to its customers and deliver the message generated by the bank or the customer within a specified time frame.
- (iv) In November, 2012, NPCI launched a USSD Gateway (National Unified USSD Platform) for enabling mobile banking through the USSD channel.
- (v) In November, 2013, with a view to facilitate mobile banking for financial inclusion, TRAI prescribed ceiling tariff of Rs. 1.50 per USSD session for USSD-based mobile banking service and established a framework to facilitate the agents of the banks to interface with the access service providers for use of SMS, USSD and IVR channels to provide mobile banking services.
- (vi) By August, 2014, all GSM cellular mobile telephone providers got connected to the National Unified USSD Platform (NUUP) platform of NPCI; as a result, all GSM subscribers were enabled to make use of USSD-based mobile banking services provided through the USSD code *99#.
- (vii) RBI had already permitted 166 banks to provide mobile banking services to their customers¹⁸.

1.14. With about 22.5¹⁹ crore Jan-dhan accounts in the country, more than 100 crore Aadhar card issued to the citizens²⁰ and more than 100 crore mobile connections in the country (of which about 45 crore are in rural areas), it was expected that the USSD-based mobile banking service would gain popularity amongst the unbanked/ under-banked population (the target masses of financial inclusion) with passage of time and would soon achieve a critical mass. However, even after two years since August 2014²¹, when it became available to all GSM subscribers in the country, the progress of USSD-based mobile banking is below expectations. In May 2016, only about 37 lakh mobile banking transaction attempts (over USSD channel) reached

¹⁸ https://www.rbi.org.in/Scripts/bs_viewcontent.aspx?Id=2463 Position as on 30th June 2016

¹⁹ www.pmjdy.gov.in/account

²⁰ https://uidai.gov.in/images/news/aadhaar_saturation_as_on_28072016.pdf

²¹ GSM subscriber base was about 99.6 crore out of total wireless subscriber base of about 103.4 crore in the country as on 30.04.2016.(TRAI data)

NPCI's platform (*99#). Clearly, something is amiss. The situation demands a comprehensive review to ensure that the service which has successfully delivered in other countries does not fall short of expectations in India. Before, we proceed to examine the issues; it would be useful to describe the steps suggested by the various stakeholders in the eco-system for achieving the goal of financial inclusion and the discussions that were held with regard to the proposed steps.

C- Communications from RBI, DFS and NPCI and discussions that were held with the TSPs

1.15. During meeting of the Authority with RBI in June 2015 and through subsequent communications, RBI has, *inter-alia*, requested the Authority to take the following steps to help in reaching the goal of financial inclusion²²:

- (i) Permit up-to 8 steps in one USSD session from the current limit of 5;
- (ii) Increase in session timer limitation;
- (iii) Reduce the ceiling tariff of Rs. 1.50 per USSD session for USSD-based mobile banking; and
- (iv) Enable USSD push messages for dropped USSD sessions.

1.16. In September 2015, DFS requested TRAI to consider the following²³:

- (i) Reduce the ceiling tariff per USSD session to Re. 0.50 for two years and ensure that charges are levied only on successful transactions;
- (ii) Increase the upper limit on no. of stages per USSD session from 5 to 8;
- (iii) Enable USSD push messages for dropped USSD sessions; and
- (iv) Make provisions for a unified USSD platform-which can support transactions across all payment mechanism.

1.17. In order to discuss the afore-mentioned steps proposed by RBI and DFS, meetings were held in TRAI with the TSPs and NPCI in the months of October and November, 2015. While NPCI agreed with the proposed steps, the TSPs were not in full agreement. A detailed description of the contention raised by the TSPs to the steps proposed by RBI and DFS has been included in the Chapter 2 of this Consultation Paper.

²² RBI letter No DPSS.CO.PD.No.2358/02.23.001/2014-15 June 08,2015

²³ Government of India, Ministry of Finance, DFS D.O No.9?17/2012-FI dated 28th September,2015

- 1.18. Subsequently, in May, 2016, NPCI, requested the Authority to extend the following support so as to encourage wider adoption of *99# platform (the centralized payment platform on USSD channel):
- (i) allow merchant payment services on *99#;
 - (ii) allow network initiated USSD message for user authentication as is required for certain type of merchant payment transactions;
 - (iii) no limitation in number of steps in a USSD session;
 - (iv) allow network initiated USSD message in case of session drop due to network issue;
 - (v) rationalize/ reduce ceiling tariff for USSD session; and
 - (vi) allow the authorized pre-paid issuers connected to IMPS system also to make use of *99#.

D- Other initiatives of the Government towards achieving financial inclusion

- 1.19. In 2013, RBI set up a 'Committee on Comprehensive Financial Services for Small Businesses and Low Income Households' under the chairmanship of Dr. Nachiket Mor, *inter-alia*, to frame a clear and detailed vision for financial inclusion and financial deepening in India. The Committee, in January 2014, *inter-alia*, recommended²⁴ that a set of banks may be licensed which may be referred to as Payments Banks, primarily to provide payment services and deposit products to small businesses and low-income households but not to provide credit facility.
- 1.20. In view of recommendations of the 'Committee on Comprehensive Financial Services for Small Businesses and Low Income Households', RBI, in November 2014, released guidelines for Licensing of 'Payments Banks'. As per these Guidelines, the objectives of setting up of payments banks will be to further financial inclusion by providing (i) small savings accounts and (ii) payments/remittance services to migrant labour workforce, low income households, small businesses, other unorganised sector entities and other users.
- 1.21. Subsequently, RBI, in August 2015, granted, 'in principle' approval for giving license of payments banks to 11 entities²⁵. Three of these entities are subsidiaries/ sister concerns of telecom service providing companies in India. The payment banks will

²⁴ Source: <https://rbidocs.rbi.org.in/rdocs/PublicationReport/Pdfs/CFS070114RFL.pdf>

²⁵ <https://rbidocs.rbi.org.in/rdocs/PressRelease/PDFs/PR4373D581F56D7B64BD08F4162D299E33EDF.PDF>

use mobile phones as the vehicle of banking and will create the conditions for cash-less banking. This means, over time, the mobile phones will perform the same role as credit and debit cards, obviating the need for too many cash payments.

1.22. Meanwhile, in July 2015, RBI constituted a 'Committee on Medium-term Path on Financial Inclusion', to suggest a monitorable medium-term action plan for financial inclusion in terms of its various components like payments, deposit, credit, social security transfers, pension and insurance. In its report of December 2015²⁶, the Committee observed that despite improved financial access, usage remains low, underscoring the need to better leverage technology to facilitate usage. A low-cost solution based on mobile technology can be a good option for improving financial inclusion by enhancing the effectiveness of 'last mile' service delivery. The Committee was of the view that to translate financial access into enhanced convenience and usage, there is a need for better utilisation of the mobile banking facility and the maximum possible Government-to-Person (G2P) payments, which would necessitate greater engagement by the government in the financial inclusion drive. The Committee was of the opinion that the government may undertake initiatives to resolve the issues of number of steps per session in a transaction on NUUP, session drops and session charges; RBI and NPCI may co-ordinate with the TRAI on this matter.

1.23. In February, 2016, the Government of India initiated a drive towards promotion of payments through cards and digital means with the following objectives²⁷:

- (i) To improve the ease of conducting card/ digital transactions for an individual;
- (ii) To reduce the risk and costs of handling cash at the individual level;
- (iii) To reduce costs of managing cash in the economy;
- (iv) To build a transaction history to enable improved credit access and financial inclusion;
- (v) To reduce tax avoidance; and
- (vi) To reduce the impact of counterfeit money.

1.24. The Department of Economic Affairs (DEA), Government of India has, in February 2016, issued Cabinet approved 'Guidelines for the promotion of payments through

²⁶<https://rbidocs.rbi.org.in/rdocs/PublicationReport/Pdfs/FFIRA27F4530706A41A0BC394D01CB4892CC.PDF>

²⁷ F.No-01/02/2015-Cy.I Dated : 29th February, 2016 Government of India Ministry of Finance Department of Economic Affairs

cards and digital means²⁸. A copy of the afore-mentioned Guidelines is placed as **Annexure-III** to this Consultation Paper. The Guidelines have, *inter-alia*, the following short term steps (to be implemented within one year):

“D. Encouraging Mobile Banking/ Payment Channels

- i. Department of Telecommunications shall take appropriate steps for rationalization/ reduction of USSD charges and the feasibility of its being charged only on successful transactions.
- ii. Department of Telecommunications/ Department of Financial Services/ RBI shall make a provision for a unified USSD platform which can support transactions across all payment mechanisms.

.....”

1.25. In June, 2016, RBI released ‘Vision-2018’ for Payment and Settlement Systems in India²⁹ as below:

“Vision Statement: Building best of class payment and settlement systems for a ‘less-cash’ India through responsive regulation, robust infrastructure, effective supervision and customer centricity”

1.26. The Vision-2018 seeks to encourage greater use of electronic payments by all sections of society so as to achieve a ‘less-cash’ society. The vision seeks to orient policies for mobile banking for facilitating faster payment services by way of enhancing options for customer registration for mobile banking services, enabling wider access to mobile banking services in multiple languages for non-smartphone users and encouraging innovative mobile based payment solutions.

E- The Present Consultation Paper

1.27. In this backdrop, the present Consultation Paper analyzes various aspects of USSD-based mobile financial services and seeks comments of stakeholders on the issues for consultation.

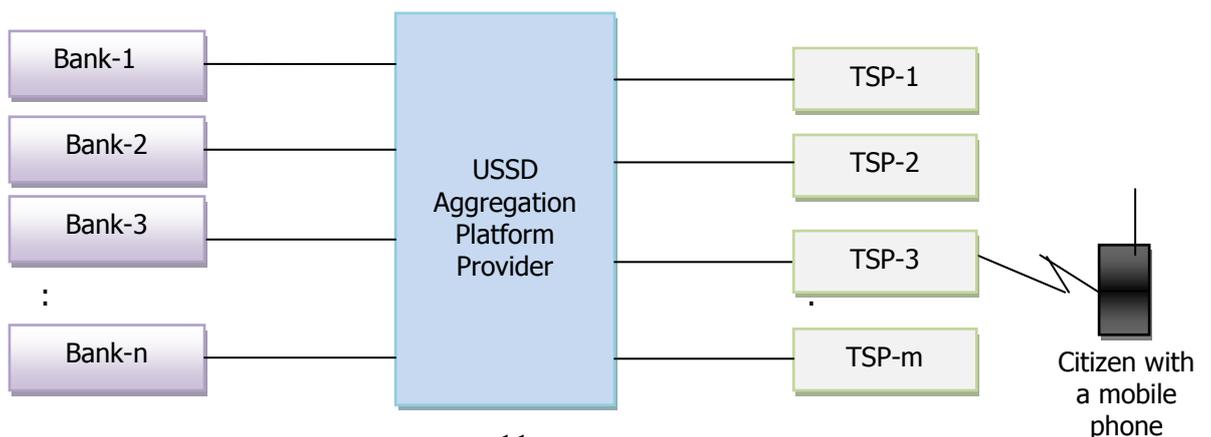
²⁸ ibid

²⁹ <https://rbidocs.rbi.org.in/rdocs/PublicationReport/Pdfs/VISION20181A8972F5582F4B2B8B46C5B669CE396A.PDF>

Chapter-II Analysis

- 2.1. This chapter begins with a description of the present-day operating model for USSD-based mobile banking service in the country. It then analyzes the key issues in the framework for the use of USSD channel for mobile financial services.
- 2.2. Technically, USSD-based mobile banking services can be implemented by way of establishing one-to-one connectivity between a bank and a TSP. If all banks with mobile banking permissions intend to provide USSD-based mobile banking services to their customers, each one of them would have to establish connectivity with each TSP separately. This would require an extremely large number of connections between banks and TSPs. Instead, USSD-based mobile banking service involving all banks and all TSPs can be implemented by way of deploying a USSD Aggregation Platform between banks and TSPs. Keeping the usefulness of the USSD Aggregation Platform, the Authority, through the Mobile Banking (Quality of Service) (Amendment) Regulations, 2013 dated 26.12.2013, mandated that every TSP, acting as bearer, should facilitate not only the banks but also the authorized agents of the banks to use SMS, USSD and IVR to provide banking services to the banks' customers.
- 2.3. Presently, NPCI has connected all the banks (with mobile banking permissions) and TSPs offering GSM service through its USSD Aggregation Platform. The following schematic diagram depicts implementation of USSD-based mobile banking through a USSD aggregation platform provider (such as NPCI).

Diagram-2.1: Operating Model for USSD based Mobile Banking through a USSD Aggregation Platform Provider



- 2.4. The sub-optimal results achieved so far in the use of USSD-based mobile banking for financial inclusion seem to suggest that the USSD-based mobile banking service suffers from the problem of inadequate usage despite adequate access. In order to address the issues in the framework for the use of USSD channel for mobile banking service in the country, it appears pertinent to examine the following points viz.-
- (i) Adequacy of the present ceiling of five-stages for entry of options in a USSD session;
 - (ii) Appropriateness of the present level of ceiling tariff for USSD session;
 - (iii) Requirement of allowing network initiated USSD push session in case the customer-initiated USSD session is dropped; and
 - (iv) Requirement of a unified USSD platform which can support transactions across all payment platforms.

A- Adequacy of the present ceiling of five-stages for entry of options in a USSD session

- 2.5. Through the Mobile Banking (Quality of Service) Regulations, 2012 dated 17.04.2012, the Authority had mandated that every access provider shall ensure that for availing the banking services the customer is able to complete the transaction in not more than two stage transmission of message in the case of SMS or in not more than two stage entry of options in the case of USSD and IVR. However, in the year 2013, the telecom service provider's association raised their concern about this mandate stating that completion of transaction in two stages may not be possible for every kind of transaction on a mobile banking menu; it will become more difficult to complete transactions in two stages as more facilities are provided on a mobile banking menu. The matter was then checked with the banks and their agents too opined that it is difficult to capture multiple parameters in two stages. After examining the matter, the Authority through the Mobile Banking (Quality of Service) (Amendment) Regulations, 2013 dated 26.12.2013, increased the maximum number of stages for completing a mobile banking transaction from two to five. Thus, at present, an USSD session for mobile banking service can have not more than five-stage entry of options.
- 2.6. Through separate communications, RBI and DFS have requested the Authority to increase the ceiling on number of stages in a USSD session for mobile banking from

five to eight. NPCI, on the other hand, has requested the Authority that there should be no upper limit on the number of stages in a USSD session for mobile banking. RBI's 'Committee on Medium-term Path on Financial Inclusion' also has opined that the government may undertake initiatives to resolve the issues of number of steps per session in a transaction on NUUP.

- 2.7. The argument put forth in support of increasing the ceiling for number of stages for entry of options in a USSD session is that the current ceiling for number of stages poses a challenge in creating a customer friendly menu for USSD-based mobile banking, which results in input error or time delay and eventually leads to transaction decline. For example, while making fund transfer using recipient's account number and IFSC code of the recipient's bank branch, the customer has to input about 23-29 digits (IFSC code-11 digits, account number-12-18³⁰ digits) in a single stage because the other four stages are used for (i) selecting bank; (ii) selecting transaction type; (iii) entering amount of money to be transferred; and (iv) entering mPIN. In general, input error is quite frequent when a customer is prompted to enter both the account number and IFSC code in one single stage. As a result, the propensity of transaction decline in case of fund transfer is quite high. Further, as the maximum number of stages in a USSD session is only five, a separate stage prompting re-entry of account number/ IFSC code cannot be afforded to help correct a wrong entry by the customer. Result - the success rate of USSD transactions is below expectations, particularly in case the transaction type is fund-transfer. In case, a customer faces a couple of transaction declines in his/her first few transactions, he/she loses trust in the service. Such a customer is less likely to use USSD-based mobile banking service again.
- 2.8. Another argument put forth in support of increasing number of stages in a USSD session/ removing limit on number of stages in a USSD session is that there is no limit on number of stages in other mobile money applications being run by the subsidiaries/ sister concerns of the TSPs. Therefore, as a matter of equity, the limit on number of stages in a USSD session for USSD-based mobile banking should be removed.

³⁰ The bank account numbers vary from 12 to 18 digits depending upon the bank.

- 2.9. In order to examine the suitability of increasing the number of stages in a USSD session, meetings were held in TRAI with the TSPs and NPCI. While NPCI supported the proposal for increase in the number of stages in a USSD session, most of the TSPs were of the opinion that any move to increase the number of stages would put a load on their signaling infrastructure and, therefore, in case, any increase in number of stages is contemplated, there should be a commensurate increase in the ceiling tariff for USSD session from the present level of Rs. 1.50 per USSD session. A few TSPs, on the other hand, were agreeable to increasing the number of stages from the current limit of five provided such USSD sessions were restricted to transactions related to financial inclusion only (and not for any other additional financial services).
- 2.10. It is understood that five stages for entry of options in a USSD session for mobile banking are sufficient for certain kind of transactions such as balance enquiry however the same may not be sufficient for transactions such as fund transfer. As the target population for USSD-based mobile banking is semi-literate and is generally not adept in the use of technology, the service needs to be made as simple and convenient as possible to improve its acceptance. Thus, there may be merit in increasing the number of stages per USSD session so that the banks and agents may create a user friendly menu for USSD-based mobile banking as it would not only help improve the customer experience but also the success rate of mobile banking transactions.

Issue for Consultation:

Q1: In your opinion, what should be the maximum number of stages per USSD session for mobile banking service:

- (i) Five**
- (ii) Eight**
- (iii) Unlimited**
- (iv) Any other (please specify)**

Please provide justification in support of your response.

B- Appropriateness of the present level of ceiling tariff for USSD session

- 2.11. In November 2013, the Authority, through the Telecommunication Tariff (Fifty Sixth Amendment) Order, 2013 prescribed ceiling tariff of Rs. 1.50 per USSD session for mobile banking service. The tariff is to be levied upon establishment of USSD session regardless of whether the session results in a successful or a failed banking transaction.
- 2.12. The rationale for fixing the ceiling tariff for USSD session at Rs. 1.50 per USSD session was based on the fact that the retail tariff for USSD-based mobile banking, at that point of time, was in the range of Re. 1.00 to Rs. 1.50 per USSD session in the USSD-based mobile banking solutions already deployed by SBI (*595#) and ICICI (*525#) in the country. While prescribing the ceiling tariff per USSD session, it was expected that the TSPs would keep tariffs for USSD session at a reasonable level below the ceiling in order to spur the demand for the service. However, it has been observed that none of the TSPs (except for M/s BSNL) offers the tariff per USSD-session for mobile banking any lower than the ceiling of Rs. 1.50 per USSD session. M/s BSNL's tariff per USSD session is Re. 1.00.
- 2.13. RBI, DFS, NPCI and DEA (through Cabinet approved Guidelines) consider the present levels of tariff per USSD session levied by the TSPs as a major impediment in the growth of USSD-based mobile banking service in the country. The expectations of these organizations from the Authority are summarized below:
- (i) **RBI** requested for the reduction of ceiling tariff per USSD session so that it may help in greater consumer acceptance of the service as the consumer get charged for unsuccessful transactions too.
 - (ii) **DFS** requested for reduction of tariff for USSD session with an upper limit of Re. 0.50 for two years and ensure that charges are levied only on successful transactions.
 - (iii) **NPCI** has requested for rationalization/ reduction of USSD charges and customers should be charged only for successful transactions, especially since the service is meant for poor customers and for financial inclusion. Other options such as monthly subscription based pricing may also be explored.
 - (iv) As per the Cabinet approved 'Guidelines for Promotion of Payment Through Cards and Digital Means' issued by DEA, Department of Telecommunications

(DoT) shall take appropriate steps for rationalization/ reduction of USSD charges and the feasibility of its being charged only on successful transactions.

- 2.14. In the meetings held in TRAI with the TSPs and NPCI in the months of October and November, 2015, on the proposal of lowering the ceiling tariff per USSD session, the TSPs emphasized that USSD-based mobile banking service has received poor uptake not because the tariff for USSD session is high but because USSD-based mobile banking has not been adequately promoted by the banks and NPCI. The TSPs opined that any revision in ceiling tariff per USSD session should be considered only when number of sessions reaching to *99# increase to a reasonable level say 10 million in a month. The TSPs further asserted that USSD based mobile banking services are far more economical than the traditional 'brick and mortar' model of banks and therefore, banks can choose to pay directly to TSPs instead of consumers making the payment.
- 2.15. It is worth mentioning that both SMS and USSD travel on inexpensive (yet important) signalling channels³¹ and, therefore, both are cost-effective tools for messaging from the perspective of TSPs. Hence, one would intuitively expect that the cost of a USSD session would be much below the present ceiling tariff for USSD session. In order to estimate the cost per USSD session for mobile banking being borne by the TSPs, the Authority has, in June 2016, called upon all TSPs to furnish information on the cost of an outgoing USSD-session (with five stage entry options) for USSD-based mobile banking services. The information is in the process of being gathered.
- 2.16. While the appropriate level of tariff per USSD session is being deliberated upon, it would be pertinent to examine the present level of tariffs for the major services being offered by the TSPs. As per the information furnished by the TSPs to the Authority as Quarterly Subscriber, Usage and Revenue Report, the level of tariffs for GSM service segment in the Quarter Ending December, 2015 were as per the Table 2.1 given below:

³¹ Mobile Networks use a variety of channels in which the information is carried. There are two main types of dedicated channels viz. traffic channels and signaling channels. The traffic channels carry voice and data traffic. On the other hand, signaling channels are used for call set-up, maintenance of call etc. and also to carry SMS and USSD messages.

**Table 2.1: Average tariffs for GSM service segment
in the Quarter Ending December 2015**

Item	Value for GSM service segment
Average tariff for outgoing voice call (Average outgo per outgoing minute)	Re. 0.47 per minute
Average tariff for outgoing SMS message	Re. 0.15 per SMS
Average tariff for data transfer	Re. 0.22 per MB

- 2.17. Clearly, the present tariff per USSD session for mobile banking offered by TSPs is several times higher than the average tariff for (i) 1 Minute of outgoing voice call, or (ii) 1 outgoing SMS, or (iii) 1 MB of data transfer.
- 2.18. It is relevant to mention that TSPs offer self-care services³² to their customers on USSD channel for free-of-charge. It indicates that (i) the network infrastructure for USSD messaging is already in place in the TSPs' networks and (ii) the USSD-based services are not very expensive. Further the fact that both SMS and USSD travel on inexpensive signalling channels, the cost per USSD session is expected to be much lower than the present levels of tariff per USSD session for USSD-based mobile banking.
- 2.19. Beginning from the year 2002, the Authority has been following the principle of forbearance of tariffs for telecommunication services except in the cases where the competition has not been able to bring the tariffs down to the cost-oriented levels. At present tariffs for only a few services are being regulated e.g. national roaming, leased circuits, rural wireline service. While devising regulatory frameworks for telecommunication services in the country, the Authority has always aimed to balance the following twin objectives, viz. -
- (i) **To protect the interests of consumers** - by way of ensuring adequate choice and affordable services to them by promoting competition and efficiency in the market; and
 - (ii) **To create incentives for TSPs** - by way of ensuring adequate (fair) returns on investment so as to stimulate orderly growth and innovation in the sector.

³² Through the Self-care Services of a TSP, a customer of the TSP can access and manage his/her telecom subscription account, without calling the customer care center of the TSP every-time.

2.20. The fact that market solution has not been able to bring down the prices of USSD-session to cost-oriented level indicates that tariff regulation may still be needed for the USSD-based mobile financial services. Keeping in view the expectation of RBI, DFS and DEA of lower tariff per USSD session, the Authority can potentially choose any of the following methods for prescribing tariff per USSD session for mobile financial services:

- (i) Cost-based tariff per USSD session
- (ii) Exploring other options such as prescribing a ceiling on monthly subscription fee per subscriber

(1) The option of prescribing cost-based tariff per USSD Session

2.21. In view of the economic constraints in the uptake of USSD-based mobile banking services, the Authority may consider prescribing cost-based ceiling tariffs for USSD-based mobile financial services in the country.

(2) The option of prescribing a ceiling on monthly subscription fee per subscriber

2.22. The Authority may also consider prescribing a ceiling on monthly subscription fee per subscriber for USSD-based mobile banking (on a USSD code say *xyz#) initially for a limited period (say one year). In case a subscriber tenders an explicit consent to subscribe to USSD-based mobile banking service (on the USSD code *xyz#), his/her service provider shall levy an amount within the ceiling so prescribed by the Authority as subscription fee valid for a period of 30 days. The level of ceiling on periodic subscription fee could be set on the basis of average number of transactions per month per subscriber and estimated cost (after allowing reasonable return on investment) per USSD session.

<p>Ceiling on periodic (e.g. monthly) subscription fee = (Average number of transactions per month per subscriber) <i>multiplied by</i> (Estimated cost per USSD session)</p>

(3) The option of the banks paying for USSD transactions to the TSPs instead of the subscribers paying to the TSPs

- 2.23. The Consultation Paper on USSD-based Mobile Banking Services for Financial Inclusion (08/2013) dated 20.09.2013 had, inter-alia posed the following question seeking views of the stakeholders: "Who should the TSPs charge for providing communication services for mobile banking to their subscribers?"
- 2.24. The core issue in the afore-mentioned question was as to whether the customers should pay for the use of USSD for mobile banking services - the business-to-customer (B2C) pricing model or- should banks/ banks' agents pay for the use of USSD for mobile banking services- the business-to-business (B2B) pricing model.
- 2.25. A majority of TSPs had responded to the afore-mentioned question stating that the banks should pay the charges for USSD transactions to TSPs and, in turn, should recover such charges from citizens for the use of USSD because the citizens are customers of banks. The argument was examined and it was observed that the mobile banking services segment involves players from the financial services sector on the one hand and the telecom services sector on the other. Their respective roles in the process of delivering USSD-based mobile banking services are as follows:
- (i) Banks facilitate their customers with banking over mobile. Thus mobile banking acts as another outlet of the banks.
 - (ii) TSPs provide their subscribers with a delivery channel (USSD) to execute banking transactions. Thus the USSD channel acts as a vehicle to help the customer reach the mobile banking outlet of the banks.
- 2.26. Basis the above, it was considered appropriate that the TSPs receive adequate recompense from the customer for the facility of the USSD communication channel that they provide to help the customer (subscriber) access mobile banking services. Accordingly, the Authority, after the consultation process of 2013, had chosen B2C pricing model for USSD-based mobile banking.
- 2.27. During the meetings in TRAI with the TSPs and NPCI in the months of October and November, 2015, the TSPs have raised concern on the appropriateness of the B2C pricing model for USSD-based mobile banking. They have contended that the USSD channel saves a lot of costs of the banks and, therefore, the banks can choose to

pay the USSD transaction charges to the TSPs; if they do so, the price barrier, if any, for the consumers would be removed and the USSD-based mobile banking service would start gaining traction.

Issues for Consultation:

Q2: Which of the following methods is appropriate for prescribing the tariff for USSD-based mobile banking?

(i) Cost-based tariff for outgoing USSD session for mobile banking; or

(ii) Monthly (or periodic) subscription fee for the use of USSD for mobile banking services; or

(iii) Any other method

Q3: What methodology should be used for estimating the cost per USSD session for mobile banking service?

Q4: If your response to the Q2 is 'Any other Method', please provide full details of the method.

Q5: Whether it would be appropriate to mandate the service providers to levy charges for USSD session for mobile banking only if the customer is able to complete his/her transaction? If yes, please describe the method to implement such an arrangement technically?

Q6: Whether the present pricing model for USSD-based mobile banking in which consumers pay for the use of USSD should continue?

Q7: In case your response to the Q6 is in the negative, what should be alternative pricing model? Please provide justification in support of your response.

C- Requirement of allowing USSD push sessions in case the customer-initiated USSD session is dropped

- 2.28. As per the present framework for USSD-based mobile banking service in the country, only customer-initiated USSD sessions (also referred to as, USSD pull sessions) are allowed for facilitating mobile banking services to the customers. The present tariff framework established through the Telecommunication Tariff (Fifty Sixth Amendment) Regulations, 2013 and Quality of Service framework established through Mobile Banking (Quality of Service) Regulations, 2012 and its Amendment apply to customer-initiated USSD-sessions. None of these framework envisage customer-terminating USSD sessions (also referred to as, USSD push sessions) as yet.
- 2.29. However, RBI, DFS and NPCI, through separate communications, have requested the Authority to allow the aggregation platform provider (such as NPCI) or bank to initiate USSD push sessions in case the customer-initiated USSD session is dropped due to any reason. Their contention is that when a customer experiences a drop in USSD session prior to completion of his/her transaction, he/she is put off because the tariff has already been levied upon him/her for a failed transaction. Generally, the probability of repeat attempts by such customers to initiate another USSD session for completing the unfinished transactions is low. In case, USSD push sessions are allowed, the aggregation platform provider can initiate a customer-terminating USSD session to such customers so that they can complete their unfinished transactions.
- 2.30. In the meetings held in TRAI with the TSPs in the months of October and November, 2015, with respect to the proposal of allowing USSD push sessions, the TSPs informed that there could be security issues involved in exposing their switching systems to the aggregation platform provider(s)/ bank(s).

Issue for Consultation:

Q8: Keeping in view the concerns raised by the TSPs, whether there is a need for allowing USSD push sessions when customer-initiated USSD session is dropped due to any reason so that the customer can complete his/her unfinished transaction? Please support your response with justifications.

D- Requirement of a unified USSD platform which can support transactions across all payment platforms

- 2.31. At present, only mobile banking transactions are permitted to be carried out on the USSD Aggregation platforms (such as *99# platform run by NPCI). However, DFS, NPCI and DEA consider that such platform(s) should be enabled as unified USSD platform which can support all variety of mobile payment services such as merchant payment, utility bill payment, mobile/ DTH recharge etc. so that payment through digital means may be promoted in the country and the vision of 'less cash' can be achieved with the existing infrastructure.
- 2.32. It is understood that a less cash society is not only more financially inclusive but also is beneficial from the point of view of enhancing the national output. Management of cash is a significant operational expense for any financial institution. This cost item for the banks eventually becomes a cost item for the individual and in turn to the whole economy. Such cost items harm most to the poor and therefore, the goal of financial inclusion is inseparably linked with the vision of a less cash society.
- 2.33. In order to move towards a less-cash and more digital payment transaction society, prima facie, there appears to be merit in the request of DFS, NPCI and DEA to enable a unified USSD platform which can support all mobile payment services apart from the mobile banking services.
- 2.34. In the meeting held in TRAI with the TSPs in the months of October and November, 2015, the TSPs opined that the issue of allowing other payment mechanisms was beyond the purview of the goal of financial inclusion. They are of the opinion that any such arrangement should be done on a bilateral basis between them and the aggregator at mutually agreed commercial terms.

2.35. It is worth pointing out that DEA (through Cabinet approved guidelines) has indicated a short-term step for DoT, DFS and RBI to make a provision for a unified USSD platform which can support transactions across all payment mechanisms. This has been done with a view to promote payments through cards and digital means. Essentially, the poor are the most to gain from a cashless society.

Issue for Consultation:

Q9: Whether it would be appropriate to allow all variety of mobile payment services apart from the mobile banking services on the existing USSD Aggregation platform(s)? Please support your response with justification.

E- Other issues related to USSD-based mobile banking

2.36. While a review of regulatory framework for the use of USSD channel for mobile financial services is being undertaken, it is imperative to not ignore any issue which may have a bearing on availability, affordability, quality of service, security and privacy aspects of mobile financial services.

Issue for Consultation:

Q10: Is there any other relevant issue which should be considered in the present consultation on the review of regulatory framework for the use of USSD for mobile financial services?

2.37. The following chapter lists the issues for consultation.

Chapter-III

Issues for Consultation

It may please be noted that answers/ comments to the issues given below should be supported with justification. The stakeholders may also comment on any other issues related to the review of regulatory framework for the use of Unstructured Supplementary Service Data (USSD) for mobile financial services along with all necessary details.

Q1: In your opinion, what should be the maximum number of stages per USSD session for mobile banking service:

- (i) Five
- (ii) Eight
- (iii) Unlimited
- (iv) Any other (please specify)

Please provide justification in support of your response.

Q2: Which of the following methods is appropriate for prescribing the tariff for USSD-based mobile banking?

- (i) Cost-based tariff for outgoing USSD session for mobile banking; or
- (ii) Monthly (or periodic) subscription fee for the use of USSD for mobile banking services; or
- (iii) Any other method

Q3: What methodology should be used for estimating the cost per USSD session for mobile banking service?

Q4: If your response to the Q2 is 'Any other Method', please provide full details of the method.

Q5: Whether it would be appropriate to mandate the service providers to levy charges for USSD session for mobile banking only if the customer is able to complete his/her transaction? If yes, please describe the method to implement such an arrangement technically?

- Q6: Whether the present pricing model for USSD-based mobile banking in which consumers pay for the use of USSD should continue?
- Q7: In case your response to the Q6 is in the negative, what should be alternative pricing models? Please provide justification in support of your response.
- Q8: Keeping in view the concerns raised by the TSPs, whether there is a need for allowing USSD push sessions when customer-initiated USSD session is dropped due to some reason so that the customer can complete his/her unfinished transaction? Please support your response with justifications.
- Q9: Whether it would be appropriate to allow all variety of mobile payment services apart from the mobile banking services on the existing USSD Aggregation platform(s)? Please support your response with justification.
- Q10: Is there any other relevant issue which should be considered in the present consultation on the review of regulatory framework for the use of USSD for mobile financial services?

List of Acronyms

S. No.	Acronym	Expansion
1	ATM	Automated Teller Machine
2	B2B	Business-to-Business
3	B2C	Business-to-Customer
4	BCA	Business Correspondent Agents
5	BSNL	Bharat Sanchar Nigam Limited
6	DBT	Direct Benefit Transfer
7	DBTL	Direct Benefit Transfer for LPG
8	DEA	Department of Economic Affairs
9	DFS	Department of Financial Service
10	DoT	Department of Telecommunications
11	DTH	Direct-to-Home
12	GSM	Global System for Mobile Communication
13	G2P	Government to Person
14	ICICI	Industrial Credit and Investment Corporation of India
15	IFSC	Indian Financial System Code
16	IMG	Inter Ministerial Group
17	IMPS	Immediate Payment Service
18	IVR	Interactive Voice Response
19	JAM	Jan Dhan-Aadhar-Mobile
20	KCC	Kisan Credit Card
21	mPIN	Mobile Personal Identification Number
22	NPCI	National Payment Corporation of India
23	NUUP	National Unified USSD Platform
24	PMJDY	Pradhan Mantri Jan-Dhan Yojana
25	QoS	Quality of Service
26	RBI	Reserve Bank of India
27	SBI	State Bank of India
28	SCB	Scheduled Commercial Bank
29	SMS	Short Message Service
30	STK	Sim Tool Kit

31	TRAI	Telecom Regulatory Authority of India
32	TSPs	Telecom Service Providers
33	USSD	Unstructured Supplementary Service Data
34	WAP	Wireless Application Protocol

Communication Modes for the Delivery of Mobile financial Services

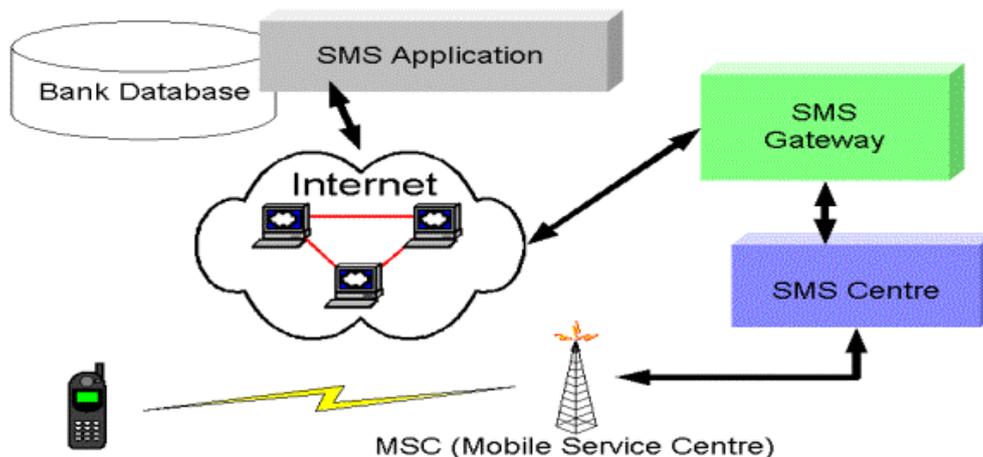
(1) IVR – Interactive Voice Response

IVR or Interactive Voice Response service operates through pre-specified numbers that banks advertise to their customers. Customers make a call at the IVR number and are usually greeted by a stored electronic message followed by a menu of different options. Customers can choose options by pressing the corresponding number in their keypads, and are then read out the corresponding information, mostly using a text to speech program.

(2) SMS – Short Messaging Service

SMS uses the popular text-messaging standard to enable mobile application based banking. The way this works is that the customer requests for information by sending an SMS containing a service command to a pre-specified number. The bank responds with a reply SMS containing the specific information. In a few instances even transaction-based services are made available to the customer using SMS.

Figure: SMS Network Architecture



(3) WAP – Wireless Access Protocol

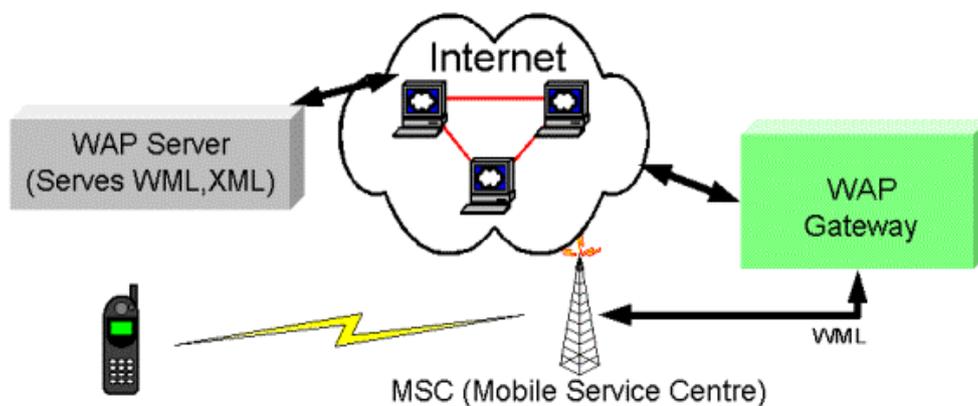
WAP uses a concept similar to that used in Internet banking. Banks maintain WAP sites which customer's access using a WAP compatible browser on their mobile phones. WAP sites offer the familiar form based interface and can also implement security quite effectively. The banks' customers can have an anytime, anywhere access to a secure

reliable service that allows them to access all enquiry and transaction based services and also more complex transactions like trade in securities through their phone.

A WAP based service requires hosting a WAP gateway. Mobile Application users access the bank's site through the WAP gateway to carry out transactions, much like Internet users access a web portal for accessing the bank's services.

The following figure demonstrates the framework for enabling mobile applications over WAP. The actually forms that go into a mobile application are stored on a WAP server, and served on demand. The WAP Gateway forms an access point to the Internet from the mobile network.

Figure: WAP Network Architecture for Mobile Applications



(4) Standalone Mobile Application Clients

Standalone mobile applications are most suitable to implement complex banking transactions like trading in securities. They can be customized according to the user interface complexity supported by the mobile. In addition, mobile applications enable the implementation of a very secure and reliable channel of communication with end-to end encryption.

One requirement of mobile applications clients is that they require to be downloaded on the client device before they can be used, which further requires the mobile device to support one of the many development environments like J2ME or Qualcomm's BREW. J2ME is fast

becoming an industry standard to deploy mobile applications and requires the mobile phone to support Java.

(5) SIM application Tool Kit

SIM Application Toolkit (STK) is a standard of the GSM system which enables the SIM to initiate actions which can be used for various value-added services. The SIM Application Toolkit consists of a set of commands programmed into the SIM card which define how the SIM should interact directly with the outside world and initiates commands independently of the handset and the network. This enables the SIM to build up an interactive exchange between a network application and the end user and access or control access to the network. STK has been deployed for many applications, often where a menu-based approach is required, such as Mobile Banking.

(6) Unstructured Supplementary Service Data (USSD)

Unstructured Supplementary Service Data (USSD) is a protocol used by cellular telephones to communicate with the service provider's computers. USSD can be used for WAP browsing, prepaid callback service, location-based content services, menu-based information services, and as part of configuring the phone on the network.

USSD messages are up to 182 alphanumeric characters in length. Unlike Short Message Service (SMS) messages, USSD messages create a real-time connection during a USSD session. The connection remains open, allowing a two-way exchange of a sequence of data. This makes USSD more responsive than services that use SMS. Some payment methods such as SWAP Mobile in South Africa, Mobipay in Spain, M-PESA in Tanzania, and mPay in Poland use USSD channels.

**Comparison of the Potential Communication Modes for the Delivery of
Mobile Financial Services for Financial Inclusion**

The following table presents a comparison of the various communication modes that can be used for delivery of mobile financial services:

**Comparison of Various Modes that could be used for delivery of
Mobile Financial Services**

S. No.	Mode	Handset Requirement	Cost per transaction	Ease with which the service can be provided to the subscriber
1	IVR	Any phone	High	The subscriber is automatically enabled to use these modes; there is no need for any separate provisioning.
2	SMS	Any phone	Medium	
3	USSD	Any phone	Medium	
4	WAP	GPRS enabled phone	Low	The TSP is required to enable the services for the subscriber.
5	Mobile Apps	Smart phone	Medium	The subscriber may have to download an application on his mobile phone.
6	STK	Pre-programmed phone	Medium	The TSP is required to change/program the SIM of the subscriber.

As can be seen in the above table, IVR, SMS and USSD score high against the yardsticks of ease of provisioning, overall affordability and availability across all mobile handsets. These features make IVR, SMS and USSD eminently suitable communication modes for providing banking services for financial inclusion. Considering these factors, the Authority, through the Mobile Banking (Quality of Service) Regulations, 2012 dated 17.04.2012 has, inter-alia, mandated that every access provider, acting as a bearer, shall facilitate the banks to use SMS, USSD and IVR to provide banking services to its customers.

Of the three preferred modes for mobile banking, banks have deployed the IVR channel for services like balance enquiry, mini-statement, cheque-book request and complaint booking and not for the full-suite of mobile banking services, as the human interface in IVR exposes the system to the potential risk of misuse and the cost of operation is also high. However, SMS and USSD have been deployed for a wider range of services by most banks that have implemented mobile banking services.

Both SMS and USSD travel on inexpensive signaling channels³³ and, therefore, they are cost-efficient tools for messaging from the perspective of TSPs. The following table presents a comparison of the features of USSD and SMS:

Comparison of the features of USSD and SMS

S. No.	Features	USSD	SMS	Suitability for Mobile Banking
1	Use of signaling channels	Yes	Yes	Both USSD and SMS are inexpensive modes.
2	Type of functionality	USSD is real-time and session oriented.	SMS uses a store-and-forward technique to deliver text messages.	USSD offers a better customer experience for mobile banking because it is interactive (menu based) and allows real-time transactions.
		USSD service can involve a menu-based continuous session.	SMS service is of single instance type and cannot involve continuous session.	
3	Average duration for exchange of each message	2 second	7 second	USSD provides faster response to the customers.
4	Message storage in mobile	Messages are of flash type and cannot be stored.	Messages are stored in the handset.	In case of USSD based transactions, there is no potentially risk of misuse of MPIN as the messages are not stored in the handset.

³³ Mobile Networks use a variety of channels in which the information is carried. There are two main types of dedicated channels viz. traffic channels and signaling channels. The traffic channels carry voice and data traffic. On the other hand, signaling channels are used for call set-up, maintenance of call etc. and also to carry SMS and USSD messages.

5	Ease of Use	Subscriber does not have to create a message.	Subscriber needs to type the message and then send it.	USSD is superior in terms of ease of use.
		It is as simple as dialing a telephone number from a contact list.		

From the analysis presented in the above tables, USSD clearly appears to be one of the most appropriate modes for mobile banking for financial inclusion.

ANNEXURE-III

F.No-01/02/2015-Cy.I
Government of India Ministry of Finance
Department of Economic Affairs
Currency & Coinage Division

North Block, New Delhi.
Dated : 29th February, 2016

OFFICE MEMORANDUM

Subject: Promotion of Payments through Cards and Digital Means

The Guidelines for the promotion of payments through cards and digital means have been approved, as given below:

2. Objectives

- i. Improve the ease of conducting card/ digital transactions for an individual.
- ii. Reduce the risks and costs of handling cash at the individual level.
- iii. Reduce costs of managing cash in the economy.
- iv. Build a transactions history to enable improved credit access and financial inclusion.
- v. Reduce tax avoidance.
- vi. Reduce the impact of counterfeit money.

3. Scope

- i. Provide access to financial payment services to every citizen along with ability to conduct card/ digital transactions.
- ii. Digitalize Government collections by equipping each collection point with a method to accept card/ digital payments.
- iii. Migrate payment transactions from cash dominated to non-cash through incentivization of card/ digital transactions and disincentivization of cash based transactions.
- iv. Enhance acceptance infrastructure in the country to promote digital transactions.
- v. Encourage corporates, institutions and merchant establishments to facilitate card/ digital payments.

4. Definition

Digital transactions are defined as transactions in which the customer authorizes the transfer of money through electronic means, and the funds flow directly from one account to another. These accounts could be held in banks, or with entities/ providers. These transfers could be done through means of cards (debit / credit), mobile wallets, mobile apps, net banking, Electronic Clearing Service (ECS), National Electronic Fund Transfer (NEFT), Immediate Payment Service (IMPS), pre-paid instruments or other similar means.

5. Goal

The goal of the proposed policy changes is to provide the necessary incentives to use digital financial transactions to replace the use of cash - either in government transactions, or in regular commerce over a period of time through policy intervention.

6. Short Term Steps

The Short Term Steps for Promotion of Payments through Card/ Digital Means, which will be implemented within one year, are suggested as follows:

A. Promotion of Card/ Digital Transactions in Government Payments and Collections

- i. Government Departments/ Organizations/ Central Public Sector Undertakings/ Anchor Networks shall take steps to (a) withdraw convenience fee/service charge/surcharge on customers who prefer to make card/ digital payments for essential commodities, utility service providers, petrol pumps, gas agencies, railway tickets /IRCTC, tax department, museums, monuments etc.; (b) take appropriate steps to bear MDR cost like other merchants; and (c) build acceptance infrastructure (POS/ Mobile POS terminals) for card/ digital payments at all collection centres.
- ii. Ministry of Road Transport & Highways/ Ministry of Urban Development shall facilitate the use of existing open-loop systems issued by a bank for multi-purpose use, including for making transit payments with a dedicated application (eg. Toll fees, metro rail and bus services, etc.).
- iii. Department of Financial Services/ RBI shall ensure that each eligible account holder under PMJDY may be provided access to the digital financial services in addition to the 'RuPay Card'.
- iv. Department of Electronics & Information Technology shall formulate an action plan to ensure Government Departments/Organisations introduce appropriate acceptance infrastructure and facilitate collection of all revenue, fee, penalties etc., through card/ digital means beyond a specified threshold, through 'PayGov India' or other mechanisms.
- v. Department of Electronics & Information Technology shall develop 'PayGov India' as a "single unified portal" across central, state governments and their public sector undertakings for collection purposes.

B. Measures for Wider Adoption of Card/ Digital Transactions

- i. Department of Financial Services/RBI shall take steps to (a) rationalize Merchant Discount Rate (MDR) on Card transactions; and (b) formulate a differentiated MDR framework for some key transaction segments, such as utility payments and railway ticketing by examining the matter holistically in consultation with the stakeholders.

- ii. Department of Financial Services/RBI shall relax Two Factor Authentication for both card present and card not present transactions below a certain specified amount. DFS/RBI shall work out a multi tiered authentication framework for low, medium and high value transactions.
- iii. Department of Revenue shall take steps to remove double taxation, if any, on service tax currently paid on MDR by the acquiring bank and on interchange fee by the issuing bank.
- iv. Wherever needed, the Departments/ Ministries shall make modifications in the Rules and Regulations that may have been issued, so that appropriate change is incorporated to allow payments / receipts by using cards/ digital means also. Cash payments by any Government Department/ Agency shall be allowed only under very specific circumstances for clearly stated reasons.
- v. Department of Revenue/ Department of Financial Services shall mandate payments beyond a prescribed threshold only in card/ digital/cashless mode.

C. Creating Acceptance Infrastructure

- i. Department of Financial Services/ RBI shall introduce of formulae linked acceptance infrastructure for different stakeholders of certain card products through appropriate ratio of POS terminals/ mobile POS terminals to cards issued or other means. The possibility of creating an Acceptance/ Financial Inclusion Fund for the purpose shall be explored.
- ii. Department of Financial Services/ RBI shall re-examine requirements under PML Act and Rules, for bringing Uniform (Know Your Customer) KYC norms based on an authorised identity for all payment systems, including Unique Identification Number or other proof of identity. Appropriate steps shall also be taken to introduce tiered KYC for facilitating low, medium and high value transactions through cards and digital means.
- iii. Department of Financial Services/ RBI shall amend and simplify the Merchant Acquisition guidelines to include Unique Identification Number or other identity based eKYC for merchants.
- iv. Department of Financial Services / RBI shall take steps to allow enhanced Cashout, of a specified amount, at Point of Sale (PoS) Terminals through Cards/ Digital means.

D. Encouraging Mobile Banking/ Payment Channels

- i. Department of Telecommunications shall take appropriate steps for rationalization/ reduction of USSD Charges and the feasibility of its being charged only on successful transactions.

- ii. Department of Telecommunications/ Department of Financial Services/ RBI shall make a provision for a unified USSD platform which can support transactions across all payment mechanisms.
- iii. Department of Financial services/ RBI shall promote Mobile banking to leverage upon the huge infrastructure available at lower cost. Towards this end, steps shall be taken to address mobile banking registration and activation challenges; ease regulations and reduce entry barriers to digital wallets/ pre-paid instruments.

E. Awareness and Grievance Redressal

- i. Department of Financial Services/RBI shall take steps (a) to create necessary assurance mechanisms for fraudulent transactions wherein, in case of a fraudulent transaction, the money will be credited back to customers' account and blocked and subsequently released after the investigation is complete, within maximum of 2-3 months; (b) to strengthen the role of banking ombudsman to provide greater customer confidence and (c) to formulate a comprehensive customer protection policy for transactions through cards and digital means.
- ii. Department of Financial Services/RBI shall take steps to optimally use funds under Depositor Education and Awareness Fund (DEAF) for expanding acceptance infrastructure and conducting awareness campaigns for a less cash society.

7. Medium Term Steps

The Medium Term Steps for Promotion of Payments through Cards/ Digital Means, which may be implemented within two years, are suggested below:

- i. Department of Financial Services/RBI shall frame necessary guidelines for merchant payment standards and interoperability between various issuers and acceptance networks, including telecom, internet, pre-paid instrument providers and Payments Banks, to ensure that merchant payments are interoperable across the broad spectrum of payments and settlements system.
- ii. Department of Economic Affairs shall constitute one or more Committees with key industry stakeholders, RBI and concerned Government Departments to review the payment system in the country. The following issues, among other, may be addressed by the Committee:
 - a. Need for changes, if any, in the regulatory mechanisms under the Payments and Settlement Systems (PSS) Act, 2007 and, in other legislations affecting the payment ecosystem.
 - b. Leveraging Unique Identification Number or other proof of identity for authentication of card/ digital transactions and setting up of a Centralised KYC Registry.
 - c. Introduction of single window system of Payment Gateway to accept all types of Cards/ Digital payments for Government receipts and enable settlements

between consumer and merchants via NPCI or other agencies within specified timelines.

- d. Studying feasibility and framing rules for creating a payments history for all card/ digital payments and ensure merchants/ consumers can leverage their credit history to access instant, low-cost micro-credit through digital means and create necessary linkages between payments transaction history and credit information.
- iii. Department of Revenue/ Department of Economic Affairs/ Department of Financial Services shall grant tax rebates/incentives or introduce mechanisms for cash back/lottery or any other measures to incentivise transactions through cards and digital means.
- iv. Department of Financial Services/ RBI shall develop a methodology for enabling very high value transactions through cards and digital means beyond the limits presently prescribed.

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Tel No. – 2309 2420

To

1. Cabinet Secretary
2. All Secretaries to the Govt. of India
3. Governor, RBI,
4. Chairman, TRAI
5. CEO, NITI Ayog
6. All Divisions of DEA

Copy to: Joint Secretary to PM, South Block, New Delhi

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