TechM's Response to TRAI

Consultation Paper onUSSD –

based Mobile Banking Services

for Financial Inclusion

September 2013

Document History

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1. EXECUTIVE SUMMARY

Introduction

Tech Mahindra (TechM) would like to thank TRAI for providing us an opportunity to submit our response to TRAI's Consultation Paper USSD-based Mobile Banking Services for Financial Inclusion.

Tech Mahindra's Majority Owned Company, Mahindra Comviva is a GSMA Certified World's Largest Deployer of Mobile Commerce Platform with more than 50 + Deployments globally.

1.1   Backgroundand Objectives

TRAI would like to understand the market scenario's globally on Mobile Banking / Commerce and would like to seek opinions from experts and industry bodies on enabling a Mobile Banking / Financial Inclusion and hence the consultation paper.

- In India, significantly large regions and populations are still unbanked/ under-banked. Despite the expansion of the banking network over the past four decades, a sizeable proportion of households (41.3%) do not have a bank account. As per the Census 2011, only 54.4% of rural households had access to banking services. Purely on grounds of equity, it is essential that financial services are made available at an affordable cost to those who are presently excluded from the formal financial system. So with the help of this paper TRAI wants to know that what is the feasibility of using USSD telecommunication for doing banking transactions.

- This paper searches for a mobile banking solutions which reaches the poor section of our society and meets their expectations of :- low transaction costs, quick and easy operability, minimum paper work,security and safety of their money, the possibility of making frequent depositsand remittances and having access to credit and other products as and whenrequired.

- The paper also seeks to find out that how would be the billing system in the new USSD interface and which all entities would be connected to the mobile banking platform.

In the following sections Tech Mahindra tries to provide answers/ solutions to the various objectives raised in this paper and provides their view on the best possible solution for delivering banking services to the end users in the most cost effective and reliable manner.

2. TECH MAHINDRA'S RESPONSE

2.1 Response to Questions asked in the Consultation Paper

Q1: Do you agree that USSD is one of the most appropriate modes for mobile banking for financial inclusion? If not, which mode do you think is more appropriate? Please support your viewpoint with reasons.

TechM's Response: Unstructured Supplementary Service Data (USSD) is one of the most reliable channels for doing any transactions (financial/non-financial). USSD uses signalling channels and ensure the availability of service even for locations where there is no data connectivity, thus having larger availability.It is real-time or instant (session-based) messaging service and does not have any storage on the mobile handset making it safer for doing financial transactions. Considering the fact that large unbanked subscriber segment would be there with limited data connectivity it makes sense to go for most reliable channel i.e USSD

The USSD gateway solution has been a successful model globally too for delivering financial services. For EX: it has been seen in Africa (Kenya) that the most successful mobile banking solution MPesa is also on USSD. In MPesa a menu is populated on the subscriber's phone and he can then perform various banking transactions like – Balance enquiry, Cash Transactions, Funds transfer etc but just sending a SMS back for the selected option. This mode is easy to use for the subscriber, convenient for the Banks, TSPs and traceable for the government bodies.

Following are the key advantages of going for USSD mode:

- Unlike IVR, USSD is bandwidth thrifty, uses signalling channels – not voice/data channels

- Unlike SMS, USSD is real time – not store and forward

- Unlike WAP/JAVA/MMS, USSD is totally handset independent, available on practically every GSM handset

- USSD is a **versatile access medium**, with distinct advantages over WAP, JAVA and even SMS

- Unlike IVR/SMS, USSD provides **enhanced interactive user experience**

- USSD is an **inexpensive** application enabler

- USSD supports vernacular/regional languages

Q2: Do you agree that the Mobile Banking (Quality of Service) Regulations, 2012should be amended for mandating every TSP, acting as bearer, to facilitatenot only the banks but also the agents of banks acting as the aggregationplatform providers to use SMS, USSD and IVR to provide banking services toits customers? Please support your viewpoint with reasons.

TechM's Response: With the growing pervasiveness of mobile technology in the lives of people across geographies and diverse economic spectra, service providers outside the mobile space have latched on to mobile as a channel to engage more closely with their end consumers – and also deliver a range of goods and services. Service providers have used various telecommunication channels, such as WAP, IVR, SMS and USSD, to promote and extend mobile banking services.

As mentioned in the above question about the benefits of using USSD over the other telecommunication channels, we suggest that the Mobile Banking Regulations, 2012 should be amended. Mobile banking regulation should be amended so that USSD as a channel can be provided not only to the banks but also to its agents, so that they can start using banking services at secured and interactive access bearer.

Given the fact that more than 800 Million of India's population own a Mobile Phone (subscribers), in order to improve Financial Inclusion and uptake of Mobile banking in India, Operators should support in offering / opening the pipes to Banks & agents. In the current schema, majority of banks are compelled to use only Enterprise Lines wherein Banks invest in Technology by offering IVR to subscribers but cannot scale due to various reasons including issues like language uptake etc. SMS & USSD is the most popular method of accessing information globally and the same is not available for Banks and agents.

Q3: Do you agree that in case of USSD transactions for mobile banking, the TSPsshould collect charges from their subscribers as they do in the case of SMSbased and Application (App) based mobile banking? Please support yourviewpoint with reasons.

TechM's Response:USSD channel enables customers to access Mobile banking services by issuing commands directly from their handset, leveraging TSP's existing infrastructure. Telecom channel is the single asset necessary for mobile banking which banks are unable to build on theirown.

The TSPs perform the critical function of USSD message delivery in this value chain. Hence, it has to be ensured that they are compensated adequately for the work done by them, either by the banks who provide the banking service or by the subscribers who use the banking services. Ideally Banks should be responsible for compensating the TSP. Further it is up to the bank to decide whether they want to charge their customers for this service or not. For Ex: Bank charges their customers for SMS alerts and transactions and Mobile App telecommunication is mostly free for the subscriber.

The charge to the TSP could be on the revenue shared basis with the bank, as per the subscribers or any other model the bank wants to provide. But at the end TRAI should ensure TSP's and Banks are mandated not to charge subscribers premium rates for USSD and TSP's are compensated adequately.

Q4: Do you agree that the records for USSD transactions must be generated bythe TSPs to provide an audit trail for amounts deducted from prepaidsubscribers and bills raised to postpaid subscribers? Please support yourviewpoint with reasons.

TechM's Response: For each USSD transaction the records should be maintained both in the USSD node and Mobile banking service node. All successful transactions charging and billing CDR's should be maintained for both prepaid and post-paid subscriber respectively. This helps the TSP's to reconcile with banks and even solve all customer queries on billing. Also we can not only rely on TSP for the audit trails as these are financial transactions and it's important to maintain its security and redundancy for reconciliation.

Q5: Would it be appropriate to fix a ceiling of Rs. 1.50 per USSD session formobile banking? Please support your viewpoint with reasons.

TechM's Response:USSD Transaction Rating/ Pricing is defined by operator based on the criticality of the information requested. In case the subscriber opts for a specific alerts service on account updates TSP's can even charge for a monthly subscription fee. Otherwise YES, an upper ceiling could be fixed for Mobile Banking Session's and each session should be valid for 3 minutes. As most TSP's offer Call Rates of 60 Paise per minute or 1 paise per second, a typical 3 minute call would be charged @ 1.80 and hence an upper ceiling for USSD, similar to that of a call at 1.50 would be appropriate.

Q6: In case your response to Q5 is in the negative, please suggest an alternativemethodology to fix a ceiling tariff for USSD session for mobile banking. Youmay also support your viewpoint with a fully developed model with associatedassumptions, if any.

TechM's Response: Not Applicable

Q7: Is there any other relevant issue which should be considered in the presentconsultation on the use of USSD as a bearer for mobile banking services?

TechM's Response: USSD uses signalling channels and ensure the availability of service even for locations where there is no data connectivity. Since there is large unbanked segment who will be using low cost phone with limited functionality, USSD as a functionality is available on all phones and because of technology (Signalling), it would support in all remote areas of the nation thereby making it an ideal access bearer.

3. MAHINDRACOMVIVA CAPABILITIES

In the past several years, both banks and mobile network operators have moved aggressively to offer mobile financial services to the unbanked. For banks, mobile money for the unbanked is a way to serve a vast swathe of customers who would otherwise be out of the reach of costly branch infrastructure; for operators, mobile money represents an opportunity to differentiate themselves from their rivals.

In any network, a burst in Messaging traffic is generally unforeseen and sporadic in nature. This affects the Quality of Service (QoS) for the delivery of critical messages. At the same time security of financial transactions, being executed from some remote location and transmission of financial information over the air, is the most complicated challenges that need to be addressed jointly by mobile application developers, wireless network service providers and the banks IT departments.

As a result, the most efficient way of managing critical messages, such as those associated with the delivery of a mobile financial service is to shape traffic while ensuring security of messages is also maintained.

The Secure Messaging USSD Platform is a secure messaging solution that supports USSD based messaging. It extends the capacity in the operator's current network by optimally routing critical messages over a secure channel. It helps to counter any abrupt spike in messaging traffic trends and yet deliver critical messages to the destination without any delay. This enables significant traffic offloads from the operator's existing Infrastructure. By offloading A2P traffic, the platform helps to free Messaging resource to handle larger volumes of higher revenue generating messages – whilst ensuring these messages are handled securely.

USSD Gateway
- An access framework providing a secure link between users and applications.
- Provides session based communication

USSD FLARES
- A single-window web-based Service Creation Environment (SCE) enabling the operator to access, create, execute, and manage services

Application Store
- List of ready-made VAS applications
- Ready to use revenue generating applications

ACE
- ACE Studio and application licenses
- GUI based drag & drop mode
- Import/Export applications
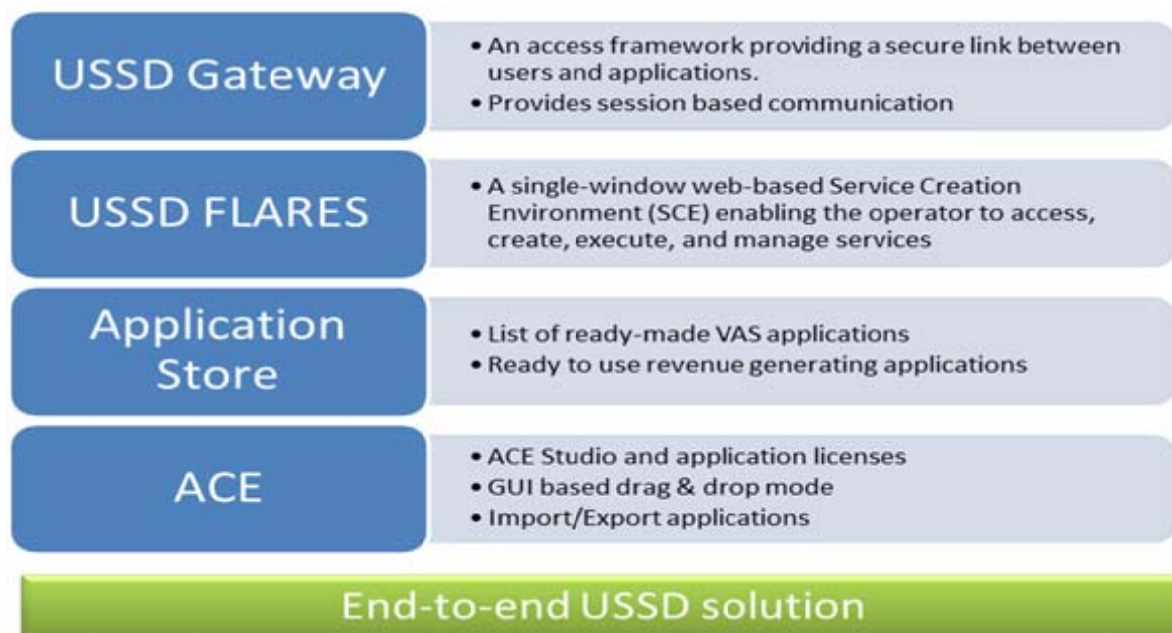
End-to-end USSD solution

Figure 1 - End to end USSD Solution

In USSD since it is a session based SS7 message; it has inherent benefits as compared to other bearers.

- Inability of a user to get authenticated on the USSD bearer channel without the possession of a valid SIM card

- Over the air and network encryption of any message strings

Hence a third party would be required to decode the air interface encryption (not plausible with such small data transmission sizes) to determine the PIN or hack into the mobile networks core systems.

Mahindra Comviva USSD covers all the aspects required to be addressed to offer a secure infrastructure for financial transaction over wireless network:

1. User ID / Password authentication of bank's customer.
2. Encryption of the data being transmitted over the air.
3. Secure Communication between various nodes.
4. Encryption of the data that will be stored in device for later / off-line analysis by the customer.

One-time password (OTP) is the latest tool used by financial and banking service providers in the fight against fraud. Instead of relying on traditional memorized passwords, OTPs are requested by consumers each time they want to perform transactions using USSD channel. When the request is received the password is sent to the registered secondary phone via SMS or registered Email id. The password is expired once it has been used or once its scheduled life-cycle has expired.

Mahindra Comviva USSD supports both Application level and Network Level security. Application level Security includes subscriber Data and Password encryption, User authentication and critical information masking. Call Detail Records (CDRs) which contain message content details and which are generated by the Secure Messaging Platform, are encrypted and provide the consumer with security, even from system administrators. Data masking is supported to hide sensitive consumer data. The platform also supports dedicated encryption logging for the operator, as well as for regulators and law enforcement agencies.

HSM is used for Securing the Encryption Key outside the Mobile banking application service. Network level security is achieved by creating S tunnel between the USSD gateway and Banking application. These secure interfaces ensure that critical consumer data is safe and secure.
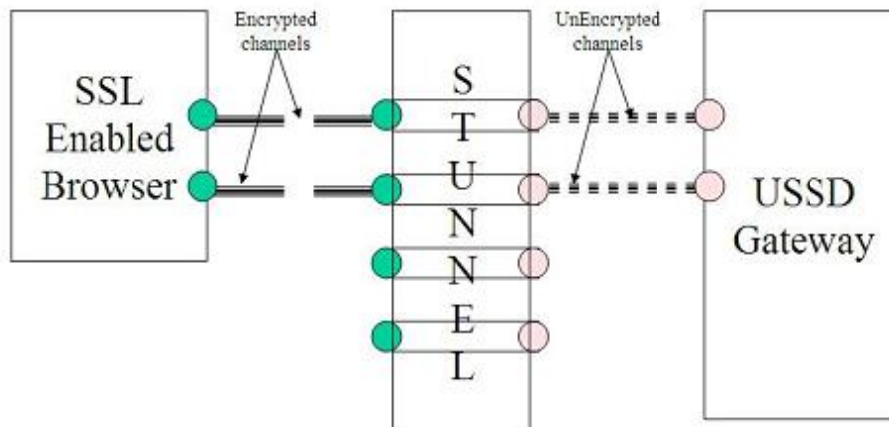
Mobile Initiated USSD Request

The MS can initiate USSD sessions for all configured services. The USSD Gateway responds with a preconfigured response ("Service Not Supported") for non-configured services. The USSD Gateway closes a USSD session in the following cases:

- Mobile station aborts a request

- Application server clears a session due to load issues

- Time Out

- Phase compatibility issues

- Service not configured

- Service not functional

- MSISDN is not received in the request

- Successful closure of session by either MS or Application

Below are the successful closure scenarios:

- MS sends a request and gets a final response from the Application Server (AS).

- MS sends a request, MS gets a network-initiated request from the Application Server, MS sends a response to the Application Server and then gets the final response from the AS.

- MS sends a request, MS gets a network-initiated notification from the Application Server, MS internally sends a response to the Application Server and then gets the final response from the AS.

- MS sends a request, a couple of network-initiated requests/notifications are sent by the AS and responses received by the MS, AS sends the final response.

Application Initiated USSD Request

A network-initiated session starts when the Application Server sends an SMPP SUBMIT-SM request with service operation as a USSR/USSN request.

The USSD Gateway closes a network-initiated session in the following cases:

- Successful closure of the session

- MS rejects the session if it is busy in other USSD sessions

- USSD Gateway rejects the session if it detects that the MS is already in an existing USSD session. This will happen when the same service sends a request to the same MS twice before closing the first one.

- A network entity clears the transaction because of timer expiry.

- Phase compatibility issues

- IMSI of the subscriber cannot be retrieved because the SRIFSM trigger to HLR failed

Below are the successful closure scenarios:

- AS sends a request to MS, gets a response and closes the session

- AS sends a request, AS gets a response from MS, AS sends another request to MS and then gets the response from MS. AS clears the session.

- AS sends one or more network-initiated requests, AS gets responses from MS and AS clears the session.

Session Maintenance and Timeouts

The USSD Gateway maintains a USSD session between the end user (mobile subscriber) and the USSD application. This session could be terminated in the following cases:

- Successful session completion

- An abort or cancel by the end user

- An abort or cancel by the HLR

- An abort or cancel by the USSD application

- Timeout at the HLR

- Timeout at the application

- Timeout at the Gateway

The USSD session timeout at the HLR is 3 minutes. The USSD session timeout at the Gateway is configurable at runtime. The default value is 3 minutes.

Tech Mahindra's majority owned company, Mahindra Comviva has significant expertise on USSD globally, which is depicted in the following image.

Advantages:

- **Faster and Secure channel** for high priority messages
- **Accelerates the uptake** and usage of mobile transactions
- Provides a **dedicated bandwidth for priority services** to the end user
- **Offload operator's existing infrastructure** from ever growing A2P messages
- Available on all handsets in the Market

A typical Funds Transfer Use case in an USSD interface is as below:-

Funds Transfer

Figure 2 - Funds Transfer Use Case

3.1   Awards and Accolades in this space

Award received at the Global Mobile Awards, 2013 for Mobile Ticketing on USSD in Bangladesh which is similar to what TRAI proposes for common man's convenience.

4. TECHM'S APPROACH AND RECOMMENDATIONS

TechM recommends that USSD is the best possible telecommunication mode to provide financial services to the unbanked and under-banked regions. USSD interface can be very easily be integrated in most of the technology platform of mobile banking, once the TSP shares the USSD APIs. Typically the role of a Bank or a TSP in a mobile banking ecosystem is to set the business rules and find an appropriate technology vendor/ System Integrator (SI). This SI then integrates with the bank, TSP and any other third party (Aadhar, Merchants, Retailers, Insurance providers) and provides the services to the subscribers.

Below is the Architecture for USSD interface toward Mobile banking services. All Banks and Government bodies will be interfacing with mCommerce Application node either centrally located or hosted in the TSP's datacentre.

Network Architecture
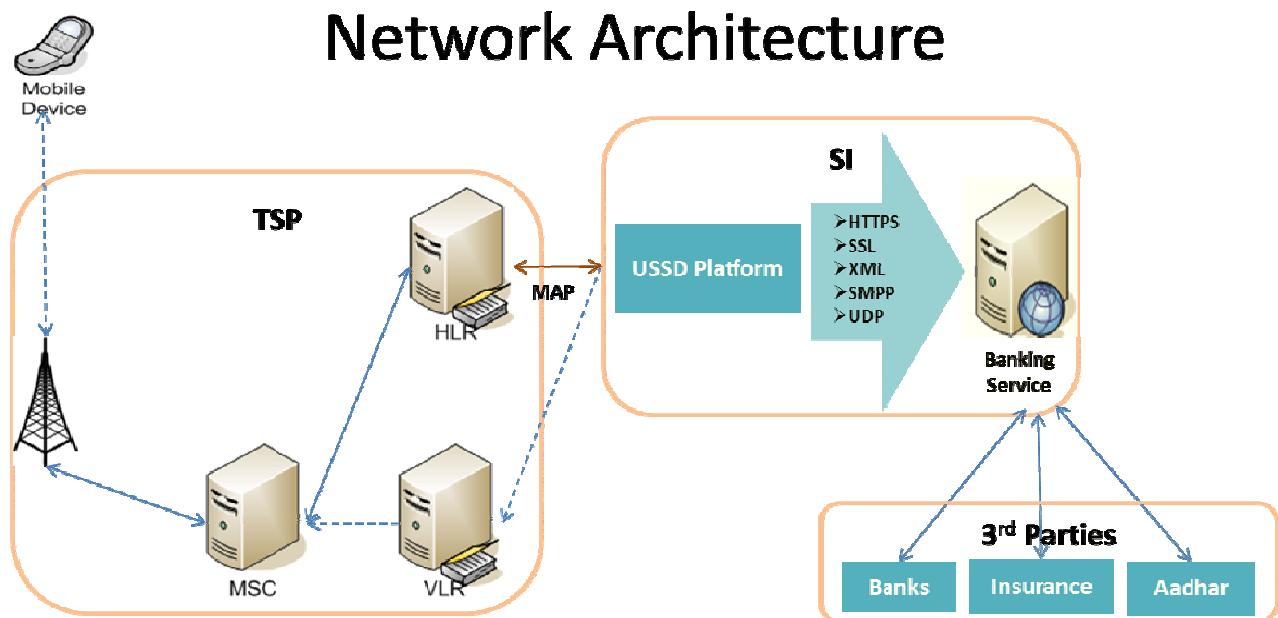
On the same lines Tech Mahindra has built this unique and innovative USSD gateway solution which has all these features and provides mobile banking services to the subscribers. The platform support the following features

- Banking services

- Inter/Interbank fund transfer

- Value added Services

- Aadhar Authentication

5. ASSUMPTIONS/ DEPENDENCIES

- USSD Interface node and Mobile Banking application will be placed in a LAN or WAN

- For a single centralized solution USSD interface node will be available at each TSP and banking application can hosted centrally for TSP's.

6. COMPANY INFORMATION

6.1 Company Information

Tech Mahindra is part of the USD 16.2 billion Mahindra Group and is a leading global systems integrator and business transformation consulting organization, focused primarily on the telecommunications industry.

The Mahindra Group employs more than 155,000 people in over 100 countries and operates in key industries that drive economic growth, enjoying a leadership position in tractors, utility vehicles, information technology and vacation ownership. Tech Mahindra expanded its IT portfolio in 2009 by acquiring the leading global business and information technology services company, Mahindra Satyam (earlier known as Satyam Computer Services).

In 2012, Mahindra featured on the Forbes Global 2000 list, a listing of the biggest and most powerful listed companies in the world. In 2013, the Mahindra Group received the Financial Times 'Boldness in Business' Award in the 'Emerging Markets' category

Tech Mahindra's capabilities spread across a broad spectrum, including Business Support Systems (BSS), Operations Support Systems (OSS), Network Design & Engineering, Next Generation Networks, Mobility Solutions, Security consulting and Testing. The solutions portfolio includes Consulting, Application Development & Management, Network Services, Solution Integration, Product Engineering, Infrastructure Managed Services, Remote Infrastructure Management and BSG (comprises BPO, Services and Consulting). With an array of service offerings for TSPs, TEMs and ISVs, Tech Mahindra is a chosen transformation partner for several leading wireline, wireless and broadband operators in Europe, Asia-Pacific and North America.

Tech Mahindra has successfully implemented more than 18 Greenfield Operations globally and has over 151 active customer engagements mostly in the Telecom sector. The company has been involved in about 9 transformation programs of incumbent telecom operators.

In the Telecom sector, Tech Mahindra has niche and proven domain expertise, distinctive IT skills, research and development, innovative delivery models and approach to off-shoring. Company's solutions enable clients to maximize returns on IT investment by achieving faster time to market, reduced total cost of ownership resulting into high levels of customer satisfaction. Tech Mahindra's achievements have been recognized by various industry analysts, forums and clients – winning several prestigious awards and accolades.

Tech Mahindra has a global footprint through operations in more than 31 countries with 17 sales offices and 15 delivery centres. Assessed at SEI CMMi Level 5, its development centres are ISO 9001:2008, ISO 20000, ISO 27000 & ISO 22301 certified.

6.2 Services

Tech Mahindra renders services across Application Development and Maintenance, Business Intelligence and Data Warehousing (BI&DW), Business Process Outsourcing (BPO), Consulting and Enterprise Solutions, Embedded Services, Engineering Solutions, Enterprise Storage Solutions, ERP, Infrastructure Management Services, Managed IT Services, Quality Consulting, GIS Technology, High-Tech Solutions, Silicon Design Services, Six Sigma Consulting etc. It has successfully delivered services to 540+ customers in Banking & Financial Services, Healthcare & Life Sciences, Retail & CPG, Energy & Utilities, Insurance, Telecom industry verticals etc., served them across the globe by implementing innovative software solutions across technology platforms like Web Commerce Solutions, Business Intelligence services, Quality Consulting, Strategic Outsourcing, implemented industry native solutions, Business Process Outsourcing / Re-engineering, Consulting, Program / Project / Portfolio Management services, Engineering and Enterprise solutions.

Tech Mahindra has organised its services across the industry domain focus verticals combined with the Technology/horizontal streams. Such a 'Web of Participation' has helped Tech Mahindra to establish the technology/best practice groups, whose help can be leveraged while working on engagements with customers across the globe. The figure below depicts Tech Mahindra's offerings across industry verticals and horizontals.

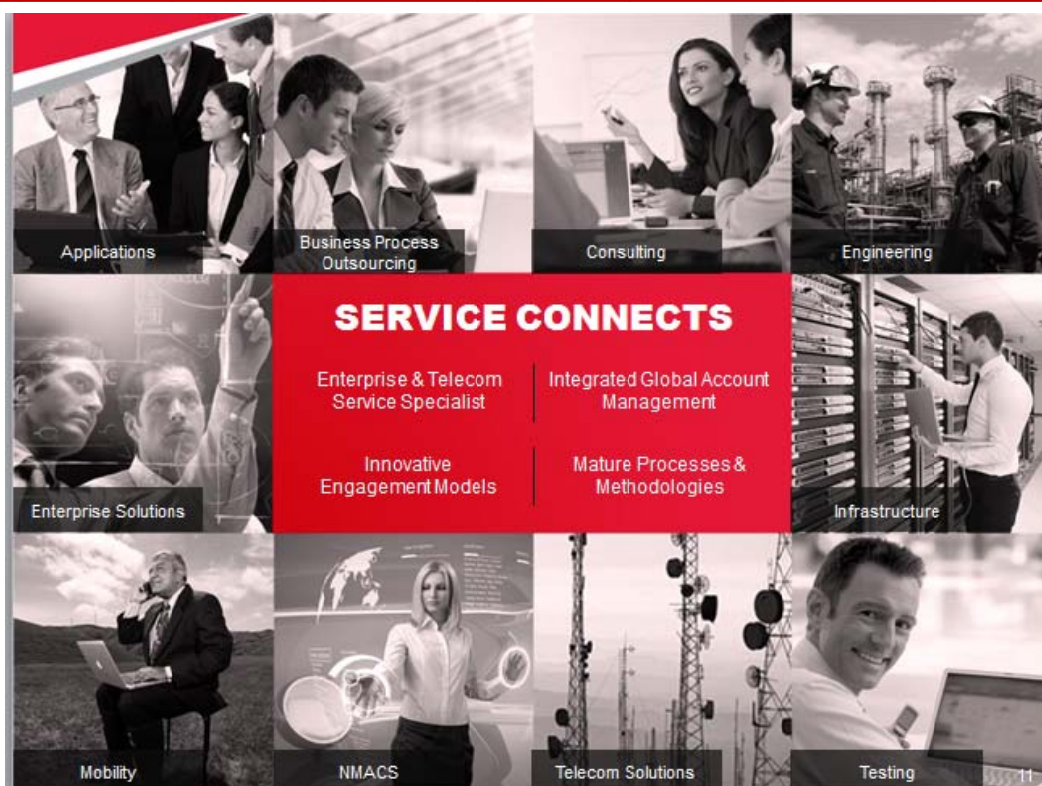Figure 3 - Tech Mahindra's Industry Offerings

Figure 4 - Tech Mahindra's Service Offerings

Leveraging deep industry and functional expertise, leading technology practices and a global delivery model, Tech Mahindra enables customers achieve their business goals and transformation objectives.

ADMS Services

ADMS has been & continues to be one of the core strengths of Tech Mahindra. Tech Mahindra over the years has added value to numerous customers in a wide range of domains which also includes the publishing domain. The ADMS services of Tech Mahindra have met its customer tactical & strategic requirement a snap shot which is shown the chart below. For further details on the Tech Mahindra's ADMS services refer to Appendix

Consulting

Tech Mahindra turns vision into action, creating and sustaining stakeholder value. We deliver insights and help our customers achieve strategic and operational excellence, using our in-depth industry knowledge and expertise.

IT Services

Tech Mahindra helps companies leverage IT to realise their business strategies, explore new opportunities, create virtual enterprises, grow competencies, and forge closer ties with their customers. We help clients architect change and implement solutions across multiple platforms.

Outsourcing

Tech Mahindra offers a wide range of outsourcing services that enable companies to focus on core competencies, free up resources, enhance productivity, and improve profitability. Our Integrated Engineering Solutions (IES) provide premium engineering and product development solutions to support a given engineered product through its lifecycle.

The Tech Mahindra BPO provides access to unmatched infrastructure, world-class resources, and highly talented, committed professionals.

6.3   Locations – Offshore and Onshore

We operate across the globe in 75 locations in 46 countries servicing various customers across industry verticals. The picture illustrates Tech Mahindra's global presence.

Below map shows Tech Mahindra offices across the globe:

Figure 5 - Tech Mahindra's Global Presence

6.4 Size of Company (employees)

Tech Mahindra currently has 84000~ employees.

~As of 31st March, 2013

6.5 Size of Company (clients)

Tech Mahindra currently has 540 clients.

~As of 31st March, 2013

6.6 List of Key Clients and Sectors

We have furnished a list of key customers and Number of Top Global Fortune 500 Customers.

5 OF TOP 5
in Telecom Equipment Manufacturers

3 OF TOP 10
in Aerospace

5 OF TOP 10
in Automotive

4 OF TOP 10
in Banking

16 GREENFIELD
implementation in Telecom

3 OF TOP 10
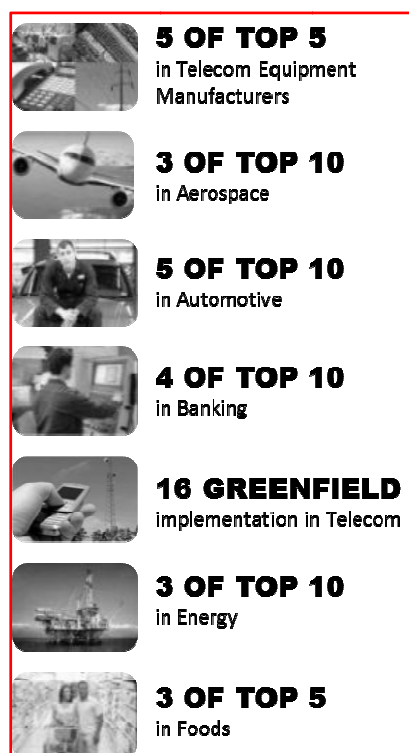in Energy

3 OF TOP 5
in Foods

Figure 6 - Tech Mahindra's Global Fortune 500 Key Customers

6.7 Growth Plans

To achieve our goals, we would embark on significant growth for the organisation by becoming preferred strategic partner to our customers. Our business strategy involves aggressive organic growth coupled with strategic acquisition strategy.

Tech Mahindra has a 3-pronged growth strategy – further strengthening the competency portfolio, deepen vertical solutions, and a sharper regional focus.

Domain solutions that help address the customers' business issues are a clear differentiator in today's market place. Tech Mahindra intends to invest in deepening its domain solutions portfolio. We would maintain our focus on key verticals – Media & Entertainment, Manufacturing, BFSI, Healthcare & Life Sciences while advancing our emerging verticals such as Retail & CPG, Travel & Logistics through select offerings. Given out expertise in Engineering Services portfolio and coupled with ability to source and manufacture components through our larger Mahindra group companies, we expect to drive fast track growth in Public sector and Aerospace & Defence sectors.

We believe that growth in the core market can be achieved by introducing new services and going beyond the traditional focus on cost reduction. In addition to our focus on vertical solutions, our CTO office drives five strategic initiatives – Cloud computing, SaaS, Open Source, Mobility and Green. We would also be investing significantly to further deepen our technology competencies in areas such as BI/Analytics and Enterprise Applications.

In order to meet the above objectives, we are continuously working to align world class competencies to focus world class segments

- Focused investment will continue in competencies
- Cross–sell/Up-sell for existing service lines
- Close coordination with group companies for infra/procurement
- Instilling confidence in all stakeholders
- Cross pollinate managerial & technical skills
- World leading consulting firm to advise on sales strategy

A considerable portion of our revenue comes from our service offerings in these two areas. Investments in associate trainings, alliances with product vendors and focus on Centre of Excellence (CoEs) ensure that our key skill sets are aligned to the services Tech Mahindra has to offer.

Tech Mahindra intends to invest in deepening our skill sets with an industry vertical focus. Tech Mahindra will continue to provide the industry expertise to tailor our offerings for the industries we serve. We will also continue to create new offerings that are industry specific.

New skill sets will be developed based on the strategic initiatives as illustrated in the fig 'Strategic Initiatives'.

As these offerings mature they will be modified for industry specific solutions. For example, in the area of mobility, we have done work in healthcare to begin creating iPhone, Droid, and other mobile device access to applications for eligibility, provider directories, claims status, etc. In addition, Tech Mahindra is considering several SaaS offerings and cloud offerings in healthcare.

Tech Mahindra realises that to be successful in today's highly competitive scenario, it has to move beyond the conventional differentiator of cost arbitrage. Tech Mahindra is, therefore, making heavy investments in various strategic initiatives to grow our Service Offerings.

Figure 7 - Tech Mahindra's Strategic Initiatives

7. SERVICE SPECIFIC INFORMATION/ KEY DIFFERENTIATORS

Key Differentiators

We believe, our key differentiators / IPs will enable us to provide cost effective solution and accelerate both Infrastructure and Service operation Transformation

Tech Mahindra Solution Area	Key Differentiator(s)
SERVICE TRANSITION	Service Transition Tool kits – Transition enabled with our home grown tools like Transition modeller, Information gathering templates, Transition dashboard, Service operation modeller, and Gap assessment kit ITIL & PMI Framework – rigorous review of TRAI processes, corrections and implementation follow-up aligned with both ITIL & PMI Team Optimization - Team skills and organization around Fixed and shared FTEs across projects enables us to optimise the Transition cost
SERVICE OPERATION & OPERATION TRANSFORMATION	TechM Service Operation Framework – tailored for TRAI with Service catalogue mapped to roles, tools, access layer, and end device; which enables to build IT Operation process map for the Transformation Unified Service Operation Platform – enabled with automated ESM / ITSM tool integration and automation orchestration capability; which will transform in to an IT Operation ERP, over a period of 18 months Automation methodology – Unique method of design, define, integrate, & automate IT Operation processes, Policies, Tasks, Controls, and document repository Service Automation Factory – Simulation lab with repository of processes and scripts to accelerate the Transformation of service operation from People centric to Platform centric S-D-S Shared service model – enable us to deliver services with single team with capability to provide support services to multiple TRAI subsidiaries/LoB by adhering to policies and processes unique to them IMS Academy & Simulation lab – enable us to train associates in Technologies and Production support practices prior to project deployment

RISKS & PRIVACY CONTROLS	<u>Engagement Readiness</u> – Includes planning for data security, privacy, confidentiality and controls. <u>Reduce dependence on "people" for data security</u> – We strongly recommended implementation of "auditable" IT governance to ensure data security, privacy and confidentiality controls.

Table 15.2 – Differentiators

Services

Service Maturity assessment

Tech Mahindra based on its experience in service delivery operations, continuously undertakes service maturity assessment exercise which help in streamlining & ensuring high availability of IT systems. The assessment is carried out around the IT operations processes practiced & IT operations documented. The end-state is to move from 'Non-practiced & Non-documented' to 'Practiced & Documented'.

ISO 20K, 27K, 9K certifications

During the course of the engagement Tech Mahindra will enable TRAI in getting certified to international standards like ISO 20K, 27K, 9K. We have professional auditors in this field that will assess & provide recommendations for certifying the operations. This exercise would be done on a continuous basis to maintain the highest level of adherence.

Infrastructure Operations Assessment

Infrastructure Operations Assessment is a new concept that helps in filling the gap not answered by ITIL,CMM,and CoBit etc. Tech Mahindra a leader in this area has created a model which suits the business and IT needs. This assessment not only identifies infrastructure operations gaps but also creates a roadmap for optimal efficiency.

8. APPENDIX

8.1   Annexure 1

As part of this response, please find attached a white paper which talks about Mobile Banking features - the story takes the readers through the background of mobile banking and m-commerce, its challenges, benefits, technological innovation associated with it and the future vision.

- It is a balanced piece which showcases the challenges faced by the players and pre-requisites for the growth of mobile banking in India

- Banks, Telcos, Venture Capitalists and Mobile app/platform developers like- **Vodafone, Airtel, HDFC, Barclays, RBI, Kotak Mahindra Bank, FIS Asia, Accenture, MasterCard, Cisco etc**

Businessworld cover-
Mobile Banking - Octo

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