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04 October, 2013

To,

Shri Manish Sinha, Advisor (F&EA),
Telecom Regulatory Authority of India
Mahanagar Doosanchar Bhawan
Jawahar Lal Nehru Marg (Old Minto Road)
New Delhi 110002

Subject : Response to Consultation Paper on USSD-based Mobile Banking Services for Financial Inclusion dated 20th September, 2013

Dear Sir,

Please find enclosed our response to the Consultation Paper subjected above. We are enclosing a white paper on Financial Services commissioned by Telenor and published by BCG. The foreword of the report is given by Mr Jon Fredrik Baksaas, President and CEO Telenor Group. We hope that the Authority will find our response and the report useful and consider our inputs while formulating the recommendation on the subject.

This is for your information and records please.

Thanking you

Yours sincerely,

For **Unitech Wireless (Tamilnadu) Private Limited**

(Erstwhile Unitech Wireless (East) Private Limited)*
(Erstwhile Unitech Wireless (West) Private Limited)*
(Erstwhile Unitech Wireless (North) Private Limited)*
(Erstwhile Unitech Wireless (South) Private Limited)*

(Pankaj Sharma)
Sr. Vice President & Head Regulatory



UNINOR response to TRAI consultation paper on 'USSD based mobile banking services for Financial Inclusion'

1. Introduction

As per Census 2011, 41.3% of the households (41%) do not have a bank account, besides the various other parameters point to under-penetration of formal banking facilities in India. The lack of banking services is more pronounced in the Rural India.

Inter Ministerial Group (IMG) recommends mobile linked no-frills account.

The recommendations focus on 5 basic transactions:

1. Account opening
2. Deposit
3. Withdrawal
4. Transfer / Remittance
5. Balance Enquiry

Other reports suggest that the no frills account opened are lying dormant. The traditional brick and mortar banks have not reached these corners of the country. In comparison the penetration and reach of mobiles is far bigger than conventional bank branches.

However, this consultation paper lays emphasis of a **bank lead model** for financial inclusion.

2. Profile of unbanked

It will be safe to assume that this vast majority of the unbanked / under banked are the rural population. The literacy levels may be low or limited to vernacular languages. They prefer informal sources for savings (lending and chit fund) and borrowings (loan and pawn brokers) as they are not able to open a formal bank account. This part of population considers visiting the nearest bank branch as an expenditure on transport and also the loss of a day's wages.

This class of users who have not opened a bank account till now have managed to procure a mobile connection. The new model should leverage this mobile link established and deliver financial products at their door steps rather than expecting to open a formal bank account.

Thus it would not be wise to push them to the same formal banking system which has not been able to address their requirements till now. Rather a model needs to be developed which reaches the doorstep of this profile of users having advantages of real time transaction, transparency and accuracy.

This model shall be a departure from bank lead model to **doorstep delivery model**.



The following 3 paragraphs would establish the advantages of **mobile financial services** as a model of financial inclusion.

3. What are the causes of financial exclusion?

Financial exclusion predominates in the world's emerging economies, often as a result of lack of credit history, overly complicated financial products, limited access to banking branches and little trust in the existing financial institutions. The 2.5 billion unbanked people manage to work around the system by borrowing or loaning between friends and family, obtaining short-term credit from employers, forming illegal savings clubs or seeking out illegal moneylenders, for example. These options are often risky, costly and with uncertain results.

The mobile phone is emerging as a key tool to overcome financial exclusion and bring financial services to unbanked populations. It allows users to complete basic payments and remittances via the mobile phone, and gives easier access to savings, credit and insurance

4. Mobile financial services lowers the barriers to financial world

Mobile financial services lowers the barriers to adoption, through reduced entry cost, reduced service price and more suitable products. This enables more people to access needed financial services in a cost-efficient and relevant way. Mobile financial services also represent an increase in access and convenience for people, as it is a service that is available to anyone who possesses a mobile phone. Mobile-based services ensure widespread coverage in even the most rural areas, 24/7 access and the avoidance of travel time and related expenses. Many unbanked individuals find it difficult to make the initial entry into the financial world, as they have not previously had the opportunity to build credit histories. Mobile financial services can help break this cycle. The mobile phone can also serve as a tool to access other products, such as credit and insurance.

5. Unique advantages of the telecom industry

Mobile financial services is not intended to replace today's banking model, but rather, to supplement it and to allow more people to access and participate in financial services. Telecommunications companies have a unique advantage in bringing mobile financial services to the people who traditional banks have difficulty reaching. The mobile operator possesses a pre-established relationship with the customers, who are already equipped with the necessary mobile device, and they are a trusted and established brand, with a large and secure distribution network. An operator is also equipped to focus on the "long tail" customers, through their extensive experience serving a wide range of customers and meeting their needs. Traditional financial institutions typically target the high-income, more profitable customers, leaving the long tail customers behind.



6. Supportive regulatory regime needed to spread mobile financial services

In order for the benefits of mobile financial services to be successfully realized in emerging economies, a supportive regulatory regime must be in place. The regulators must create a facilitative environment that not only allows for the management of the risk, but also enables flexibility and innovation as the mobile financial services ecosystem naturally evolves.

7. SMS and USSD penetration in India

While the banking services have penetrated the 58% of the household, the mobile services teledensity is 70.85 %. In contrast to the proliferation of mobile services, the SMS penetration is quite low at 40 % of the population and the penetration of USSD is a much smaller percentage. The SMS usage has reduced by -20.65 % on a year on year basis. USSD is not inter-operable between networks and the service providers do not have USSD billing system.

8. The RBI business correspondent Guideline dated September 28, 2010 permitting banks to engage companies registered under the Indian Companies Act, 1956, **excluding Non Banking Financial Companies (NBFCs)**, as BCs in addition to the individuals/entities permitted earlier, subject to compliance with the guidelines mention the following :

“

The banks will be fully responsible for the actions of the BCs and their retail outlets / sub agents.

The agreement with the BC should specifically prohibit them from charging any fee to the customers directly for services rendered by them on behalf of the bank.

The banks (and not BCs) are permitted to collect reasonable service charges from the customers in a transparent manner.

(x) collection of small value deposits

(xii) receipt and delivery of small value remittances/ other payment instruments.

“

The responsibility is fixed with the banks and the inter-mediatory is not authorized to collect any charges from customer. This is a **B2B model proposed** as far as the collection of charges is concerned.

9. Present deployment of banking services :

Presently IVR/SMS/WAP based balance enquiry, ordering of cheque books, bill payments, payment alerts are being provided by mobile operators with tie-ups with banks. Some of these services are subscribed directly by the mobile user without intervention of the mobile service provider. The charges are being collected by banks



directly from their customers and per transaction based charges are paid to the mobile operators. This is a **B2B model in practice now.**

10. Business model and way forward

The mobile banking perse will not facilitate opening of a bank account as is a stated objective. In order to achieve the 5 basic goals, Balance enquiry is already being served through SMS/IVR.

Deposit, Withdrawal, Transfer / Remittance should be encouraged through all possible channels like USSD, SMS, IVR, WAP, Mobile Apps, STK. Restricting to a single USSD based services will handicap the growth amount the underserved profile of unbanked population.

As we have explained in para 2 and 7, the un-banked population may not use USSD channel due to literacy level / vernacular issues. The growth of SMS is fast declining and USSD never had a mass uptake.



UNINOR response to the issues under consideration.

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?

UNINOR:

The USSD based delivery model is not the most appropriate mode for mobile banking. The literacy levels and low penetration of SMS/USSD will severely restrict the uptake of USSD based services, we have explained in detail in para 2 and 7.

IVR based bill payment is a popular and easy solution where vernacular language can be deployed at the call centre / IVR. An STK or Indi SMS based system may best suit a diverge vernacular group.

We have 164.81 Million Internet Subscribers out of which 143.20 Million Subscribers accessed internet through wireless phones. Thus WAP or Mobile App based solution for mobile banking will be useful for this group of users.

Any specific method should not be promoted by TRAI at the cost of others, the choice should be given to the customer and adaptation of technology should follow the customer experience curve.

Q2: Do you agree that the Mobile Banking (Quality of Service) Regulations, 2012 should be amended for mandating every TSP, acting as bearer, to facilitate not only the banks but also the agents of banks acting as the aggregation platform providers to use SMS, USSD and IVR to provide banking services to its customers

UNINOR:

SMS: The banks and its agents are free to avail the services of telemarketers for SMS based services.

USSD: The USSD are not mandatory services under our license. We do not have a billing system for USSD services and these services are not inter-operable between operators.

IVR: all commercial / scheduled banks are offering IVR based services on their helpline numbers and normal call charges apply. The banks can also subscribe to FPH services if they want to follow the 'called party pays' principle.

Bank based model at the core of this consultation propagates the failed reason why the rural population has not opened an account in the formal banking system. The approach should be to reach the customer at its doorstep by banks, mobile operators, insurance firms, non-bank credit companies, subsidies etc.

Hence, banks alone are not the enablers of financial services.



Q3: Do you agree that in case of USSD transactions for mobile banking, the TSPs should collect charges from their subscribers as they do in the case of SMS based and Application (App) based mobile banking?

UNINOR:

NO, the RBI guideline prohibits any collection of charges by inter-mediatory. Banks are solely responsible for billing their customers and compensate mobile operators **on B2B basis**.

SMS based service: the mobile subscriber directly subscribes to the services from the bank, the annual charges are paid to the bank. The TSPs are paid per transaction on a **B2B model**.

Application based mobile banking: the subscriber pays for the data usage charge only.

In any of the above TSPs are not collecting banking transaction charge from customers, the banks are providing m-banking services to its customers, so banks should charge for the services provided and share a portion with TSPs for using their telecom resources based **on B2B model**. The RBI guideline mandate that the charges should be collected only by banks.

Q4: Do you agree that the records for USSD transactions must be generated by the TSPs to provide an audit trail for amounts deducted from prepaid subscribers and bills raised to postpaid subscribers?

UNINOR:

NO, we do not have a USSD based billing system and any audit trail is not possible.

Q5: Would it be appropriate to fix a ceiling of Rs. 1.50 per USSD session for mobile banking?

UNINOR: NO, in view of above.

Q6: In case your response to Q5 is in the negative, please suggest an alternative methodology to fix a ceiling tariff for USSD session for mobile banking.

UNINOR:

In a B2B model the rates shall be left to negotiations between banks and telcos, the banks should project the volume of transaction projection for near future.

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

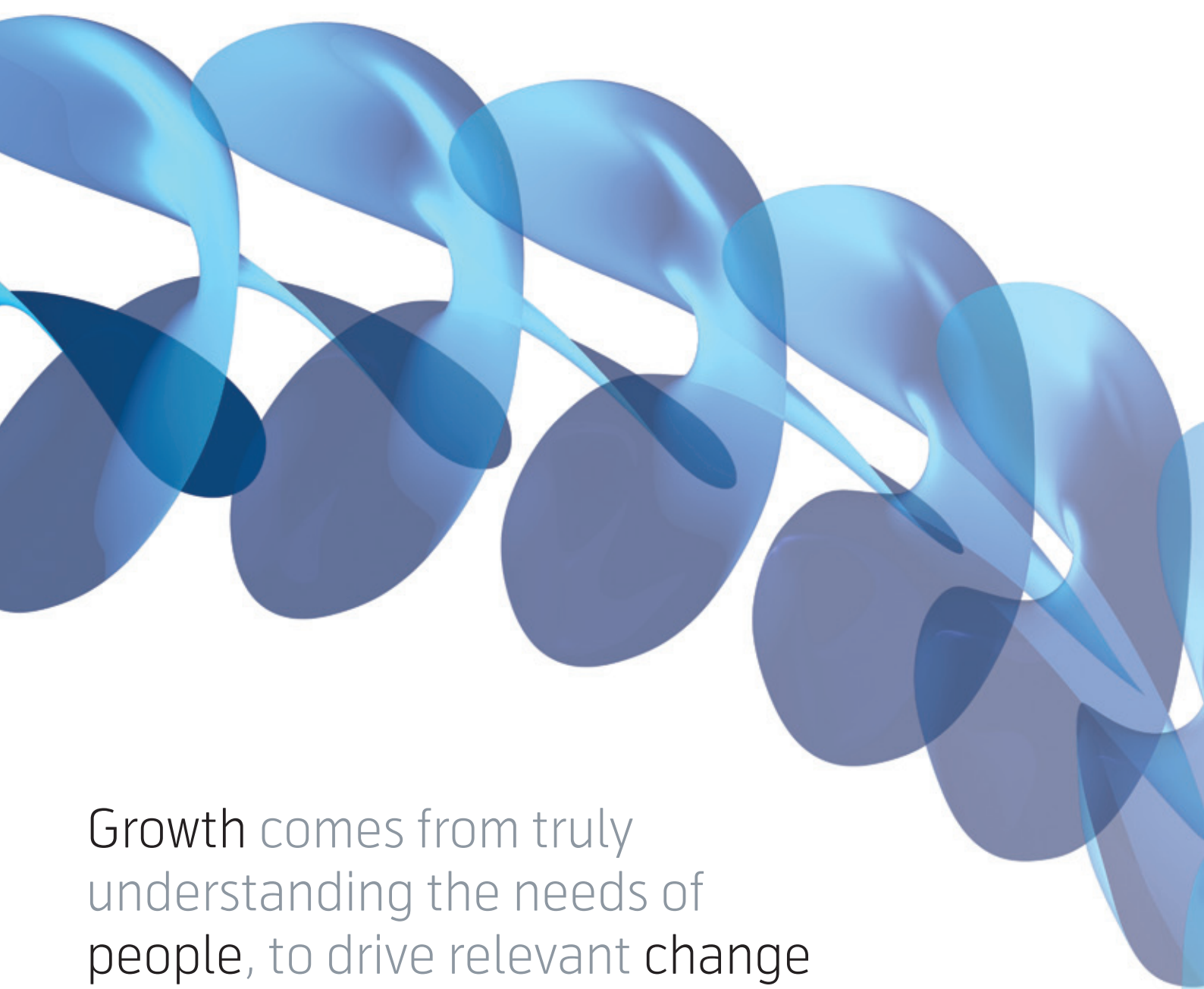
UNINOR:

We are enclosing a white paper on Financial Services. This report was commissioned by Telenor and published by BCG. The report includes a study of the key markets Telenor is operating in and what type of financial services "products" that has been launched in these markets.



Shaping our financial future

Socio-economic impact of mobile financial services



Growth comes from truly understanding the needs of people, to drive relevant change

Foreword

It is my pleasure to introduce you to our most recent study on the socio-economic impact of mobile financial services, conducted with the help of Boston Consulting Group (BCG). Through our research, we looked at what mobile financial services will mean to the world in the year 2020. We specifically delved into five countries: Pakistan, Malaysia, Bangladesh, India and Serbia, all markets in which Telenor Group has mobile operations.

Without giving away too much of what lies ahead, I can firmly say that mobile financial services will have a significant impact on the economic and societal growth of the countries studied. By bringing banking services and financial products to people who are entirely unbanked at present, they now have the chance to strengthen their development and prosper. The mobile phone is the key to simpler money transfers, readily accessible savings accounts, new methods of bill payment and even insurance products to protect against unforeseen events.

This is the first comprehensive study to truly identify the impact of mobile financial services over the next decade. It helps us understand how the introduction of these services can create more jobs in Pakistan, bring insurance to more people in India and increase Serbia's GDP. While the results of our study are not absolute, they give an indication of what is possible with the appropriate regulatory framework and governmental support.

As a global telecommunications operator, we have a unique role to play in the development and expansion of mobile financial services. We hope that through a better understanding how these services can affect the world, the telecommunications industry can contribute to the prosperity of the nations in which we operate.



Jon Fredrik Baksaas

Jon Fredrik Baksaas
President and CEO
Telenor Group





Introduction

Today, more than 2.5 billion adults in the developing world are considered “financially excluded”. This means that they do not have access to basic financial services, such as bank accounts, bill payment, credit or savings and insurance products. However, most of these 2.5 billion adults own or have access to a mobile phone ^(Exhibit 1),

The Telenor Group has explored the impact of mobile-based financial services in emerging economies, looking at how having bank accounts and access to credit, for example, will change the way people live, work and develop over the next decade. To conduct this study, Telenor commissioned the Boston Consulting Group (BCG) to study financial services’ overall impact, as well as look into the specific effects in Telenor’s Asian markets (Pakistan, Bangladesh, Malaysia and India) and Serbia.

Enhancing the economy

While it is widely agreed that mobile financial services are positively affecting emerging economies already, Telenor and BCG explored what the picture will look

by the year 2020. According to BCG estimates, mobile financial services may result in a 5 – 20 percent reduction ^(Exhibit 2) of financial exclusion by 2020. In Pakistan alone, the reduction may be as much as 20 percent.

BCG estimates that mobile financial services have the power to increase gross domestic product (GDP) by up to five percent ^(Exhibit 3) in the countries studied by 2020. This GDP growth may be stimulated by increased access to credit, which prompts new business creation, as well the benefits of formal remittances and increased savings.

A tool for societal change

With mobile financial services reaching a potential 341 million people in the five studied Telenor markets, by 2020, there is bound to be significant social impact as well.

Financial inclusion has the power to promote inclusive growth in the countries studied. Based on the Gini coefficient, the most commonly used measure of

inequality, inequality levels in Malaysia can be reduced 5 % by 2020, as the benefits of financial services can positively affect the poorest in a population. Such benefits include the support of entrepreneurs with savings and credit products, a reduction of middlemen-related costs and the facilitation of international remittances. Job growth is a natural result of increased entrepreneurship and business expansion, and through mobile financial services, greater opportunities can be realized for citizens in even the most rural areas of a country.

BCG specifically explored the financial burdens experienced by families during times of disaster, looking into how mobile financial services could provide some relief. They found that mobile financial services are an important tool for responding and preparing for natural disasters.

What are the causes of financial exclusion?

Financial exclusion predominates in the world's emerging economies, often as a result of lack of credit history, overly complicated financial products, limited access to banking branches and little trust in the existing financial institutions. The 2.5 billion unbanked people manage to work around the system by borrowing or loaning between friends and family, obtaining short-term credit from employers, forming illegal savings clubs or seeking out illegal moneylenders, for example. These options are often risky, costly and with uncertain results.

The mobile phone is emerging as a key tool to overcome financial exclusion and bring financial services to unbanked populations. It allows users to complete basic payments and remittances via the mobile phone, and gives easier access to savings, credit and insurance products.

Mobile financial services lowers the barriers to financial world

According to BCG's study, mobile financial services lowers the barriers to adoption, through reduced entry cost, reduced service price and more suitable

products. This enables more people to access needed financial services in a cost-efficient and relevant way. Mobile financial services also represent an increase in access and convenience for people, as it is a service that is available to anyone who possesses a mobile phone. Mobile-based services ensure widespread coverage in even the most rural areas, 24/7 access and the avoidance of travel time and related expenses. Many unbanked individuals find it difficult to make the initial entry into the financial world, as they have not previously had the opportunity to build credit histories. Mobile financial services can help break this cycle. The mobile phone can also serve as a tool to access other products, such as credit and insurance.

Unique advantages of the telecom industry

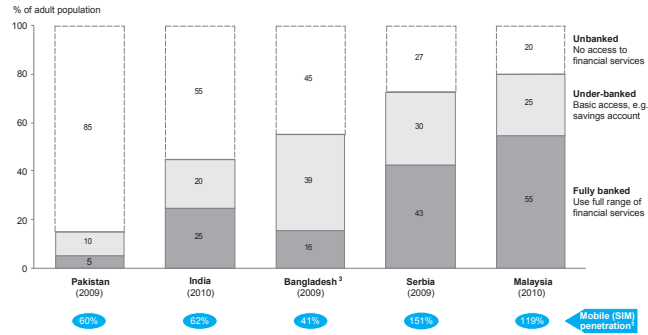
Mobile financial services is not intended to replace today's banking model, but rather, to supplement it and to allow more people to access and participate in financial services. Telecommunications companies have a unique advantage in bringing mobile financial services to the people who traditional banks have difficulty reaching. The mobile operator possesses a pre-established relationship with the customers, who are already equipped with the necessary mobile device, and they are a trusted and established brand, with a large and secure distribution network. An operator is also equipped to focus on the "long tail" customers, through their extensive experience serving a wide range of customers and meeting their needs. Traditional financial institutions typically target the high-income, more profitable customers, leaving the long tail customers behind.

Supportive regulatory regime needed to spread mobile financial services

In order for the benefits of mobile financial services to be successfully realized in emerging economies, a supportive regulatory regime must be in place. The regulators must create a facilitative environment that not only allows for the management of the risk, but also enables flexibility and innovation as the mobile financial services ecosystem naturally evolves.

Exhibit 1

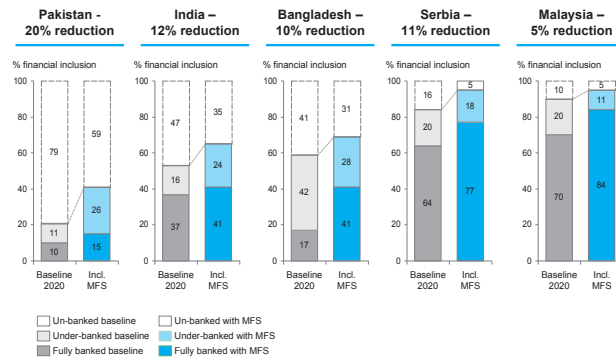
Significant variation in current financial inclusion



1, 2010
Source: Asia Development Bank; CGAP; Garner; GSMA; IE Market Research; IFC; Ovum; World Bank; Wireless Intelligence; BCG Analysis

Exhibit 2

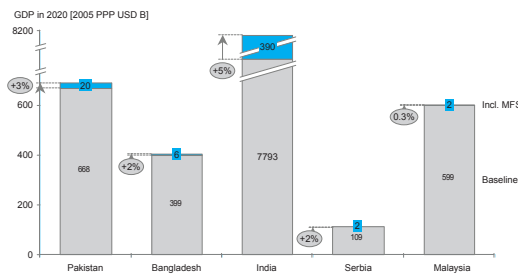
MFS may reduce financial exclusion 5-20% by 2020



Note: Baseline of financial inclusion assuming growing with GDP:FI ratio as developed by World Bank/Honohan (2008), adjusted to peer countries
Source: ADB; BudgetCerts; CGAP; Garner; Ovum; IE Market Research; IFC; Wireless Intelligence; World Bank; Country statistics units; BCG analysis

Exhibit 3

Impact on GDP in 2020 could range between 0.3-5%



1. Assuming 1% change in financial development increases growth in real per capita GDP 3.6%. E.g. per GDP/capita of 1,000 growing at 1% p.a. will be increased to 1,010.36
Based on Beck, Demirgüç-Kunt, and Levine (2004); "Finance, Inequality and Poverty: Cross-Country Evidence" and King and Levine (1993); "Finance, entrepreneurship, and growth"
Source: EIU; World Bank; BCG experience



Population: 175 million
GDP per capita: USD 2,400
Mobile (SIM) penetration: 60%
Percentage of unbanked adults: 85%

Sources: Country estimates from 2009 CIA World Factbook; Mobile penetration and percentage of unbanked adults from Boston Consulting Group



Pakistan

Currently 85% of adults in Pakistan are financially excluded. They do not have access to formal financial services of any kind, leaving them to alternative, often illegal, means of managing their money. According to BCG research, mobile financial services could potentially reach 71% of the unbanked population by 2020^(Exhibit 4). The Pakistan Telecommunications Authority (PTA) reports that mobile subscriptions in Pakistan surpassed the 100 million mark in 2010, making the mobile phone the most widespread and accessible tool for bringing financial services to the country.

The potential of formal financial services in Pakistan

The formal financial services that the unbanked population is most commonly deprived of include savings accounts, bill payment, an official line of credit and insurance products. The offering of savings accounts shows impressive potential in Pakistan, with

a predicted doubling of transaction volumes by 2020. This means that 27 million adults in Pakistan can hold savings accounts via their mobile phones in 2020, providing them with unprecedented financial security and stability.

Bill payment is also a common challenge in Pakistan today. For individuals located in rural parts of the country, paying a simple bill can mean a day of travel and related expenses in order to reach the nearest banking branch. Mobile financial services can facilitate bill payment for a total of 17 million additional customers by 2020, marking an increase of 31%.

The mobile phone can also be used as a means to access credit services for an additional 10 million Pakistanis by 2020. The mobile operator has a unique advantage in providing credit solutions, as they are able to leverage on their well-known and trusted brand, provide universal access through the phone, as well as a wide network of mobile agents. Plus, the operator already possesses

personal information on the customers and has access to customer transaction histories, which can be used as one lens for building credit history.

With a broad introduction of insurance products beginning in 2012, Pakistan could potentially see an additional four million people insured by 2020, more than doubling current numbers. Through mobile distribution, a wide range of products that are specifically tailored to the needs of the population are possible, such as health insurance, crop insurance and natural disaster insurance.

International remittance services in Pakistan can also increase 24% by 2020. The mobile phone can be used as a channel to provide secure and instant remittances that are available to all. Mobile financial services remittance offers are designed to be safe, convenient and fast. Customers have a pre-established relationship with the mobile operator which instills the trust required, while formal banks are often less trusted by unbanked individuals.

The benefits of mobile financial services

For individuals in Pakistan, mobile financial services provides easy accessibility to banking services that have previously been unavailable. The costs of the services are typically lower, transactions can be made instantly from anywhere, and customers no longer need to be so reliant on cash. Increased financial inclusion will lead to Pakistani GDP growth of 3% by 2020^(Exhibit 5), primarily through increased entrepreneurship. This will also contribute to the creation of one million additional jobs^(Exhibit 6). The government can also benefit from mobile financial services, using it as a less costly means to distribute welfare and subsidies, as well as enable e-government services such as passport applications and social security requests, for example.

Through inclusive economic growth and reduced inequality, stimulated by mobile financial services, families and business will be better equipped to withstand the unexpected and improve their lives through education, health and entrepreneurship. Mobile financial services directly supports Pakistan's Five-Year

Plan (2010-15) and the country's Vision 2030. It has the power to create opportunities for the rural poor by increasing financial security and reducing the cost of transactions. It supports the government's goal to keep children in school, as it is easier for families to keep children in school through better money management. Mobile financial services also leads to: improved access to healthcare through simpler payments and health insurance, increased opportunities for women to access banking and control allocation of funds within the household, and increased transparency through fewer cash transactions.

Regulatory issues faced before widespread adoption is possible

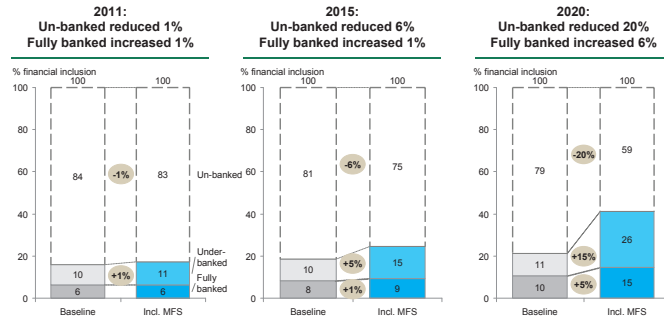
A comprehensive regulatory framework must be in place in Pakistan, one that extends freedom of action for the non-banks, in order for mobile financial services to become widespread. Pakistan has already shown great progress in regulating mobile financial services by allowing financial institutions to engage with different types of agents and acknowledging the mobile operator as a type of agent. Pakistan has prioritized consumer protection in its regulations, suggesting customer awareness programs and holding banks liable for any fraudulent behavior of its agents.

The regulatory challenge remains to improve flexibility. One potential barrier is that the policies covering anti-money laundering and the prevention of financing terrorism currently apply to banks only, and have not yet been customized for mobile financial services or branchless banking activities. In addition, the requirements for the registration of potential customers is currently a challenge, namely due to the fact that approximately 20% of Pakistanis do not possess a national identity card. Limits on transaction amounts can also present a hurdle for widespread adoption of mobile financial services, as a reduced transaction amount can lessen the appeal for customers.

Exhibit 4

... reducing number of un-banked 20% in 2020

Financial inclusion increased to 41% in 2020



Note: Baseline of financial inclusion assuming growing with GDP/FI ratio as developed by World Bank/Honohan (2008), adjusted to peer countries
 Source: Asia Development Bank; Axco Insurance Market Information; CGAP; FDIC; IFC; GSMA; Honohan (2008); MoMarket.org; World Bank; BCG Analysis

Exhibit 5

Access to MFS could increase GDP 3% by 2020

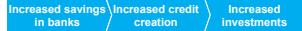
Strong evidence suggests GDP increases with financial inclusion

Selected levers

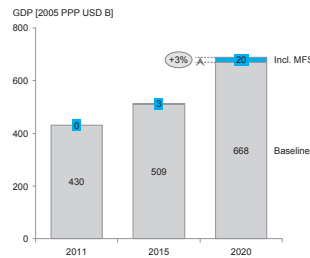
Access to credit facilitates entrepreneurship and new business creation



"Accounting benefit" of building savings within the banking system



MFS could add US\$ 20B to GDP by 2020, an increase of 3%¹



¹ Assuming 1% change in financial development increases growth in real per capita GDP 3.6%. E.g. per GDP/capita of 1,000 growing at 1% p.a. will be increased to 1,010.36
 Based on Beck, Demirgüç-Kunt, and Levine (2004): "Finance, Inequality and Poverty, Cross-Country Evidence" and King and Levine (1993): "Finance, entrepreneurship, and growth"
 Source: EIU, World Bank, BCG experience

Exhibit 6

New business activity could create 1M new jobs by 2020

Translates into jobs for 1 in 10 unemployed today

Financial inclusion and access to finance spurs entrepreneurship and new business...

Increased access to finance facilitates entrepreneurship, new business creation and jobs



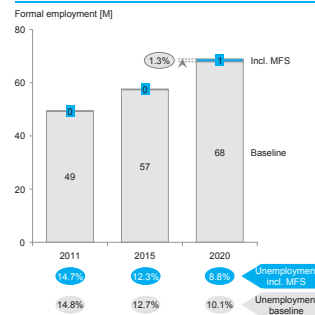
Up to 0.6M new businesses could be created by 2020 with MFS increasing financial inclusion 20%

- Predominantly among informal entrepreneurs, as existing business owners mostly already have access to finance
- World Bank study finds a 1% increase in financial inclusion leads to 0.51% increase in business creation

Both establishment of new businesses and expansion of current business will contribute to provide new jobs

- World Bank study finds 15% increase in financial inclusion increase employment 1%
- Value chain for serving MFS will also contribute to job creation

... and could create up to 1M new jobs by 2020¹, an increase of 1.3%



¹ Assuming 15% increase in financial inclusion increases employment 1%
² Asian Social Science (2009): "Dissecting Behaviors Associated with Business Failure: A Qualitative Study of SME Owners in Malaysia and Australia"
 Source: EIU, World Bank, BCG experience, BCG analysis



Population: 26 million
GDP per capita: USD 14,700
Mobile (SIM) penetration: 119%
Percentage of unbanked adults: 20%

Sources: Country estimates from 2009 CIA World Factbook; Mobile penetration and percentage of unbanked adults from Boston Consulting Group

Malaysia



Financial inclusion in Malaysia has made significant strides over the last decade, as today's statistics show that 80 percent of Malaysian adults are considered financially included. This leaves 20 percent of the population without any access to formal financial services. These customers are often considered the "long tail" customers who are considered less profitable to the established banking institutions. However, this customer group presents an opportunity for providers of mobile financial services, who are better equipped to reach this segment of the population.

With the proper regulatory elements in place, Malaysia could potentially see 47% of its population using mobile financial services by 2020^(Exhibit 7). Internet banking in Malaysia is already following the pattern of Internet growth in the country, with steady annual increase from 2006 to 2009. Online banking alone has seen an increase of 33 percent each year since 2006. Mobile financial services can play a significant role in the continuation and stimulation of this upwards trend in Malaysia.

Increasing access in Malaysia

Formal bill payment is one potential growth area associated with mobile financial services. Up to three million additional customers can get access to bill payment services by 2020, a 15% increase in number of users. Active users of savings accounts in Malaysia can

also increase, with an estimated three million additional users by 2020. Saving account usage will rise by 15%, with an average of 24 transactions per user by the end of the decade.

Today, the penetration of credit services in Malaysia is at 59%. Upon broad introduction of credit services, mobile financial services could raise credit penetration to 89%. Credit through mobile financial services is on average 19% less expensive than credit offered through traditional banks, and the mobile operator as the banking agent is better equipped to handle the smaller and more frequent credit transactions.

Insurance stands to make the greatest gains in Malaysia by the year 2020. Given a broad introduction of insurance products by 2012, the number of formally insured people in the country could increase by 31% over the next nine years. That means that four million more Malaysians, despite their rural locations, income variations or lack of claim documentation, will be able to insure themselves against accidents or other adverse events.

Malaysia can prosper with mobile financial services

Although Malaysia is an advanced economy, the social benefits of mobile financial services will make an impact

in the development of the country. The poorest members of the population commonly face two main challenges: high income volatility and severe expense shocks. Mobile financial services can alleviate these challenges by helping users build a savings buffer and increasing the inflow of money through remittances. In times of disaster or unexpected expenses, mobile financial services is a way to obtain funds and provide relief, either in the form of credit, remittances or insurance.

Mobile financial services also enables time and cost savings for both rural and urban users. Avoiding time wastage during travel and waiting time at a banking outlet can generate savings equivalent to around 1% of annual income. Banking institutions stand to benefit as well, as they will have fewer low-value/high cost transactions to deal with, which reduces overall customer wait time and the number of staff required on site. Employees will be more productive by avoiding a trip to the bank, and there may even be positive benefits on the traffic, with less people forced to travel to make numerous transactions each year.

Impact on the Malaysian economy

Analysis suggests that by 2020, mobile financial services could increase GDP in Malaysia by two billion, an increase of 0.3% from today^(Exhibit 8). As access to financial services increases the opportunity for entrepreneurship, up to 15,000 new businesses could be created. Through these new businesses and the expansion of current businesses, new jobs will naturally result, with a potential 44,000 new jobs (jobs for one in nine unemployed persons today) by 2020^(Exhibit 9). According to the World Bank, a 15% increase in financial inclusion stimulates a 1% increase in employment.

The firms, merchants and middlemen can benefit from increased financial inclusion via mobile financial services as well. With the mobile phone as the key tool, firms can decrease their administrative burdens, such as paperwork and cash handling. Merchants acting as mobile financial services agents will see increased traffic and revenues through the sales of these services. The potential for the decline in illegal activities is also prominent, as informal financing through loan sharks for example will no longer be necessary.

Supporting social development in Malaysia

Financial inclusion can help support Malaysia's goal to be a strong, developed and united nation. Mobile financial services is a direct answer to reducing the barriers for the rural poor to access banking services, and it can also serve as a toolkit to support human capital development and help poor individuals avoid the worst outcomes.

Financial exclusion and poverty are highest in the rural areas of Malaysia. Overall, 3.8% of the nation lives in poverty, largely concentrated in rural settings where a large portion of the population is entirely unbanked. However, poverty is not limited to the rural areas. Many urban workers are equally at risk, as a significant number of these individuals live off of low wages. The urban poor typically take advantage of informal means of financing, such as borrowing from friends and relatives or seeking help from illegal moneylenders. These informal methods of acquiring money could be alleviated through loans that are remitted directly via mobile financial services.

The regulatory road ahead in Malaysia

Financial inclusion is a key priority for Malaysia. It is central to the country's goal of creating inclusive growth and generating significant economic and social benefits. Malaysian banks are currently increasing their focus on the unbanked population, but they experience difficulty in reaching the "long tail" customers, especially those in rural parts of the country. Distribution costs in reaching rural areas are high and expected revenues from this portion of the population are low.

With the advantages that telecommunications companies have in their distribution networks, existing customer relationships and lack of total reliance on financial services revenues, successful financial inclusion in Malaysia will benefit from positioning the mobile operator in a central role.

Exhibit 7

... reducing number of un-banked 5% in 2020

Also increasing fully banked by 14%

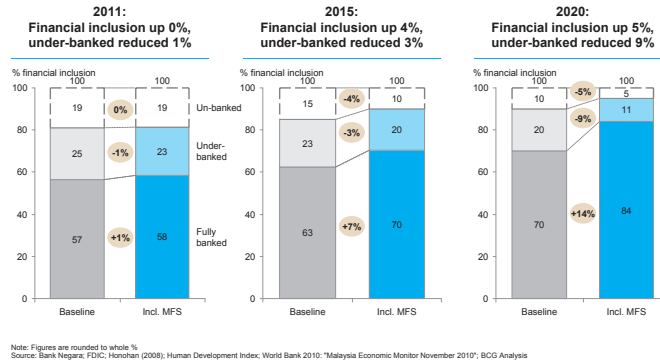


Exhibit 8

Access to MFS could increase GDP 2B by 2020

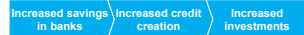
Strong evidence suggests
GDP increases with financial inclusion

Selected levers

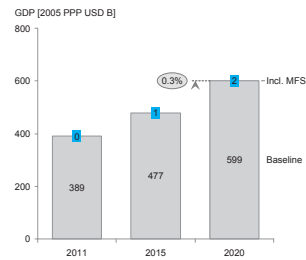
Access to credit facilitates entrepreneurship and new business creation



"Accounting benefit" of building savings within the banking system



MFS could add US\$ 2B to GDP by 2020,
an increase of 0.3%¹



¹ Assuming 1% change in financial development increases growth in real per capita GDP 3.6%. E.g. per GDP/capita of 1,000 growing at 1% p.a. will be increased to 1,010.36
Based on Beck, Demirgüç-Kunt, and Levine (2004); "Finance, Inequality and Poverty: Cross-Country Evidence" and King and Levine (1993); "Finance, entrepreneurship, and growth"
Source: EIU, World Bank, BCG experience

Exhibit 9

New business activity could create 44K new jobs by 2020

Translates into jobs for 1 in 9 unemployed today

Financial inclusion and access to finance
spurs entrepreneurship and new business...

Increased access to finance facilitates entrepreneurship,
new business creation and jobs



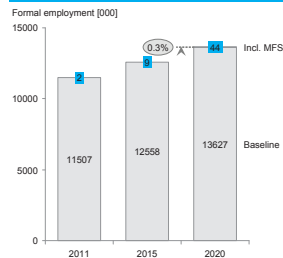
Up to 15K new businesses could be created by 2020 with
MFS increasing financial inclusion 5%

- Predominantly among informal entrepreneurs, as existing business owners mostly already have access to finance
- World Bank study finds a 1% increase in financial inclusion leads to 0.51% increase in business creation

Both establishment of new businesses and expansion of
current business will contribute to provide new jobs

- World Bank study finds 15% increase in financial inclusion increase employment 1%
- Value chain for serving MFS will also contribute to job creation

... and could create up to 44,000 new jobs
by 2020¹ an increase of 0.3%



¹ Assuming 10% increase in financial inclusion increases employment 1%
² Asian Social Science (2009): "Disrupting Behaviors Associated with Business Failure: A Qualitative Study of SME Owners in Malaysia and Australia"
Source: EIU, World Bank, BCG experience; BCG analysis



Population: 156 million
GDP per capita: USD 1,700
Mobile (SIM) penetration: 41%
Percentage of unbanked adults: 45%

Sources: Country estimates from 2009 CIA World Factbook; Mobile penetration and percentage of unbanked adults from Boston Consulting Group



Bangladesh

While 55% of the Bangladeshi adult population is considered financially included, largely due to microfinance solutions, only 16% is fully banked. Mobile financial services can serve as a solution for addressing 76% of those who are not currently banked, a section of the population that traditional banking institutions are not well equipped to address.

Currently, mobile-based bill payment solutions are well-established in Bangladesh. Other mobile financial services remain in the starting phase. For example, Grameenphone's mobile wallet service has existed since 2006, with a related savings product launched in 2010.

The introduction of mobile financial services to Bangladesh could mean a 10% reduction in the unbanked population^(Exhibit 10). The mobile phone can serve as Bangladesh's gateway to 22 million more bill payment users, 12 million more formal credit users, 30 million more people with savings accounts and 3 million

more insured. In addition, mobile financial services can contribute to an increase in the number of remittance users, with an estimated 39% of the population using this service by 2020. By using the mobile phone, costs associated with remittances can be reduced by approximately 5 to 12%.

Creating a better Bangladesh with mobile financial services

As with the other countries studied, mobile financial services are necessary to help the people of Bangladesh overcome the barriers to banking. Mobile banking enables anytime, anywhere interaction directly through the mobile phone. Small monetary amounts can be transacted frequently and account features can be tailored for the customer group at hand. This could mean customized required balance amounts, flexible repayment plans and lower identification/credit history requirements.

The Bangladeshi economy stands to gain as well with the introduction of mobile financial services, adding USD 6 billion to the country's GDP by 2020^(Exhibit 11). This 2% increase would largely result from increased access to credit, which in turn would facilitate new business creation. Up to 500,000 new jobs may result by 2020 as a result of new business creation through mobile financial services^(Exhibit 12).

Mobile financial services can also be a key asset for the Bangladeshi government. By pushing the formalization of incoming remittance flow, a potential USD 160 million could be added to government tax revenues by 2020. Bangladesh can also use mobile financial services as a method of interaction with citizens, facilitating cost- and time-efficient welfare and subsidy disbursement, as well as enabling e-Government services such as credit applications and tax payments.

Supporting Bangladesh's vision for the future of its people

The Bangladeshi government has set up a "Charter of Change", listing the country's vision of where it will be in 2021. Mobile financial services can serve as an integral tool in helping the country achieve its goals. By increasing income stability and cash flows with mobile banking, which in turn affects education, health and entrepreneurship, Bangladesh can make strides towards securing economic stability, reducing poverty and fostering rural development. Bangladesh's goal to increase family and child welfare can benefit from a mobile payment options for healthcare services, and the distribution of aid and insurance can be simplified through use of the mobile phone during times of disaster.

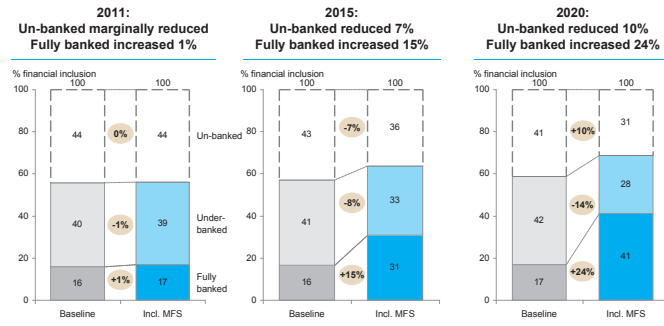
The rural poor in Bangladesh have historically been at a disadvantage due to the lack of bank branches within a reasonable distance. A journey to the bank for a rural resident may mean travelling a great distance, increased exposure to theft and money loss and the other risks associated with a lengthy trip to the bank. Poor families are also ill-prepared for unexpected expenses, such as serious injuries and funerals. Nearly 70% of these types of payments are out-of-pocket, which can have a devastating effect on a poor household. With the

integration of mobile financial services in the lives of the poor, they can save money, purchase insurance to protect themselves against disaster and gain easier access to immediate healthcare.

Clarity required to remove regulatory gray areas

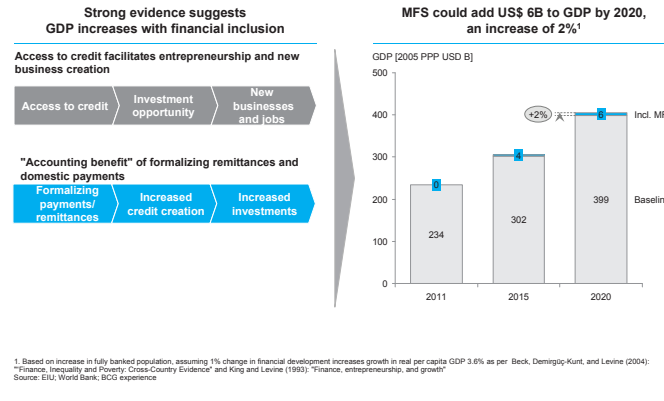
Bangladesh faces three priority issues when it comes to the successful implementation of mobile financial services in the country. First, the regulators must establish a framework and guidelines that bridge financial services with telecommunications. Second, there must be room for increased capacity and knowledge sharing, which can be achieved through workshops and the development of guidelines. Finally, the use of agents must be clarified, as clear accreditation procedures for agents can help reduce disputes between banks and non-banks. Once these three issues have been resolved, Bangladesh will be well positioned to bring the benefits of mobile financial services to even the farthest reaches of its population.

MFS could increase financial inclusion 10% by 2020



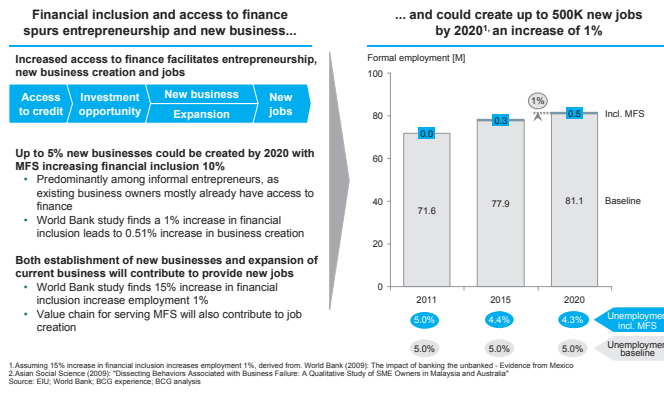
Note: Baseline of financial inclusion assuming growth with GDP/FI ratio as developed by World Bank-Honohan (2008)
 Source: Asia Development Bank, Access Insurance Market Information, CGAP, FIC, IFC, GSMA, Honohan (2008), MckMarket.org, World Bank, BCG Analysis

Access to MFS could increase GDP 2% by 2020



New business activity could create 0.5M new jobs by 2020

Translates into jobs for 1 in 9 unemployed today





Population: 1.15 billion
GDP per capita: USD 3,400
Mobile (SIM) penetration: 62%
Percentage of unbanked adults: 55%

Sources: Country estimates from 2009 CIA World Factbook; Mobile penetration and percentage of unbanked adults from Boston Consulting Group



India

The world's second most populous country represents vast opportunity for mobile financial services. Currently 55% of the population is without access to any formal financial services. India is home to many alternative means to obtaining, saving and storing money, many of which entail great risk and illegalities. While 45% of the population has access to financial services (from basic to full-range), the BCG study shows low penetration of key financial services and that greater adoption of these services could cause positive gains in both India's economy and society.

The use of the mobile phone for banking and other financial services is in the starting phase in India. India's population is currently estimated at 1.15 billion, and of this number there are approximately five million Indians actively using some form of mobile financial services. These five million people are taking advantage of bill payment, savings and remittance options through mobile operators, while credit and insurance products have yet to hit the market.

Given a supportive regulatory environment in India, it is estimated that 29% of the adult population could

become active users of mobile financial services by 2020. The inclusiveness of mobile financial services has the power to reduce the unbanked population from 45% down to 12% by 2020^(Exhibit 13). According to the study, mobile financial services can give 142 million more Indians access formal savings, 123 million more can use mobile bill payment, 82 million more can take advantage of formal credit and 19 million more people can be insured, by 2020.

How mobile financial services can help a rickshaw puller in New Delhi

In each country explored in this study, it is clear that mobile financial services can help people overcome barriers to the financial world and thus improve their livelihoods. In India, this statement can be applied to the life of a 28-year-old rickshaw puller from New Delhi. He lives in the city with his wife and four children, but has parents who reside in a rural village. He dutifully sends Rs 1,000 every two months to help sustain his parents. He pays Rs 100 for each money transfer, and he has also taken out loans for his rickshaw and for healthcare.

The rickshaw puller is unable to open a bank account because he does not possess the minimum deposit amount required. He lives in fear of losing his home because it was purchased without documentation and he would like to provide health insurance for his family, but is unable to pay the premium. He hopes to one day see his children educated and married, and he would like to eventually leave his rickshaw behind, return to his home village and open a shop.

Mobile financial services can serve as a vital tool for this rickshaw puller to start planning for his family's future. The barriers that he currently faces can be alleviated with mobile financial services, as the ID requirements are simpler, the costs are lower and features can be adjusted according to need. He can open a bank account, start a savings plan, purchase insurance or apply for a line of credit through the convenience of his mobile phone.

Mobile financial services can help meet societal needs in India

With strong evidence linking GDP growth with financial inclusion, BCG estimates that India's GDP could rise 5% by 2020 through the addition of mobile financial services in society^(Exhibit 14). The increased access to credit, greater investment opportunities and the creation of new businesses could result in an additional four million jobs for India's workforce. This translates to employment for 1 in 10 of every unemployed person in India today^(Exhibit 15). The creation of new businesses and jobs will naturally lead to corporate tax on profits and employee income tax. This could result in an increase of USD 50 billion in government tax revenues by 2020, an increase of 5% from the baseline.

Beyond job growth, mobile financial services helps families manage their money and gives them the financial security needed to keep their children in school. The removal of a child from school to save money is often the first line of action for a family following a financial shock. Approximately 7% of Indian children between the ages of 6-13 are not in school. Approximately 22% of children dropped out of school in grade one or two, typically to return home and help out the family.

These problems can be alleviated through mobile remittance options, for example, in which families can more readily receive money from a wage-earner working outside their village. The recipient of the money transferred can then create a mobile-based savings plan. Insurance can be purchased and emergency loans can be made available, helping to mitigate unforeseen expenses. By more easily moving money around and purchasing financial products that lessen the impact of unplanned expenses, more children can stay in school instead of becoming wage earners at a young age.

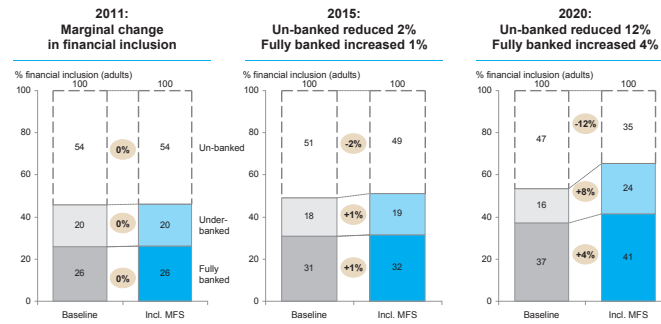
Mobile financial services can also stimulate female empowerment in India. Increasing women's access to funds is shown to have positive effects on children's health and education. Currently 45% of Indian women do not make health decisions for the family; however studies show that women are more likely to allocate money for a child's health, education and household than men. Mobile financial services can make it easier for a woman to have control over the family's needs, namely through access to direct loan distribution and savings accounts.

Working with regulatory issues in India

India must address two priority issues in order for mobile financial services to be successfully implemented. Currently in India, a non-bank can only be involved in the provisioning of mobile financial services by acting as an agent for a licensed bank. The potential for the spread of mobile financial services could increase significantly if the regulatory framework was altered to allow non-banks to employ agents to act on their behalf as well.

In addition, non-banks in India today are limited in what they can offer via the mobile wallet. This mobile payment option cannot be used for cash withdrawal, redemption or person-to-person transfer, for example. The development of enabling regulations for comprehensive non-bank e-money and payment systems is crucial in order to foster growth and competition within mobile financial services.

... reducing number of un-banked 12%, to an adult financial inclusion rate of 65%



Note: Baseline of financial inclusion assuming growth with GDP/FI ratio as developed by World Bank/Honohan (2008), adjusted to Indian historical growth
 Source: Asia Development Bank, Asean Insurance Market Information; CGAP, FIC, IFC, GSMA, Honohan (2008); MktMarket.org; World Bank; BCG Analysis

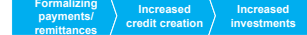
Access to MFS could increase GDP 5% by 2020

Strong evidence suggests GDP increases with financial inclusion

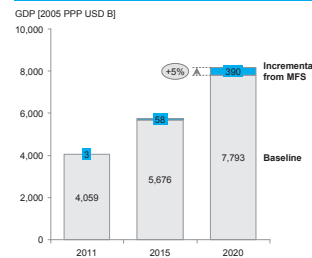
Access to credit facilitates entrepreneurship and new business creation



"Accounting benefit" of formalizing remittances and domestic payments



MFS could add US\$ 390B to GDP by 2020, an increase of 5%¹



¹ Assuming 1% change in financial development increases growth in real per capita GDP 3.6%. E.g. per GDP/capita of 1,000 growing at 1% p.a. will be increased to 1,010.36
 Based on Beck, Demirgüç-Kunt, and Levine (2004); "Finance, Inequality and Poverty: Cross-Country Evidence" and King and Levine (1993); "Finance, entrepreneurship, and growth"
 Source: EIU; World Bank; BCG experience

New business activity could create 4M new jobs by 2020, translating into jobs for 1 in 10 unemployed

Financial inclusion and access to finance spurs entrepreneurship and new business...

Increased access to finance facilitates entrepreneurship, new business creation and jobs



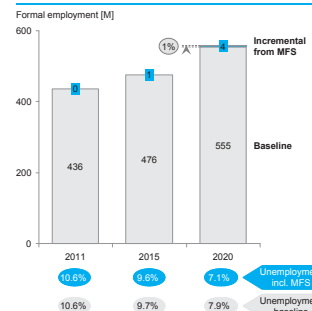
Up to 0.6M new businesses could be created by 2020 with MFS increasing financial inclusion 12%

- Predominantly among informal entrepreneurs, as existing business owners mostly already have access to finance
- World Bank study finds a 1% increase in financial inclusion leads to 0.51% increase in business creation

Both establishment of new businesses and expansion of current business will contribute to provide new jobs

- World Bank study finds 15% increase in financial inclusion increase employment 1%
- Value chain for serving MFS will also contribute to job creation

... and could create up to 4M new jobs by 2020¹ an increase of 1%



¹ Assuming 15% increase in financial inclusion increases employment 1%
² Asian Social Science (2009); "Dissecting Behaviors Associated with Business Failure: A Qualitative Study of SME Owners in Malaysia and Australia"
 Source: EIU; World Bank; BCG experience; BCG analysis



7
БЛОК 45
ОМЛАДИНСКИ СТАДИОН

Population: 7.4 million
GDP per capita: USD 11,000
Mobile (SIM) penetration: 151%
Percentage of unbanked adults: 27%

Sources: Country estimates from 2009 CIA World Factbook; Mobile penetration and percentage of unbanked adults from Boston Consulting Group



Serbia

Today in Serbia 73% of the adult population is considered financially included, meaning they have access to some sort of banking or financial services. This leaves 27% of the population unbanked and on their own when it comes to managing their finances. Mobile financial services have existed in Serbia for the past five years, and the country has made progress in offering key financial services to its population, including bill payment, savings accounts, credit and insurance. However, active usage of these services remains low, in part due to lack of trust in banks and providers.

Despite Serbia's prevalent distrust in the formal banking institutions, Serbians are rapidly taking advantage of new services such as mobile parking and mobile ticketing. Telenor Serbia has already launched an m-Parking offer which is expected to reach 290,000 users in 2011. Through familiarity and experience with these mobile services, consumers are slowly building trust in mobile banking.

Given a supportive regulatory environment in Serbia, mobile financial services could reach 36% of the adult population by 2020. This equates to an 11% reduction in the number of unbanked individuals^(Exhibit 16); and the use of services such as bill payment, formal savings, credit and insurance can all make double digit increases over the next decade. Most significantly, the use of insurance products can be increased by 24% if broadly introduced in 2014. Currently, high transaction costs and volatile income levels inhibit people from purchasing insurance. Mobile distribution can resolve this by offering products that are suited to the needs and payment capabilities of a wide range of customers.

Mobile financial services allows Serbian society to make positive gains

The introduction of mobile financial services could add USD 2 billion to Serbia's GDP by 2020, marking a 2% increase over the baseline^(Exhibit 17). In addition to new

business creation, benefits derived from increased savings in banks, the creation of more credit and more investments can all contribute to GDP growth. Widespread mobile financial services is estimated to play a role in the creation of 23,000 new jobs in Serbia by 2020. This means one job for every 20 unemployed persons in the country^(Exhibit 18). These 23,000 new jobs will help generate corporate tax on profits as well as employee income tax, adding USD 400 million to government revenues by 2020.

The Serbian government has laid out its goals for economic, cultural and social development of the country. Serbia's efforts to improve rural social and economic development can be supported by the increased financial security and the reduced costs of financial transactions provided by mobile financial services. Simplified payment methods and cash flow control can help improve access to education and healthcare for people with low incomes, and access to loans and savings products for a wider range of people can provide better job prospects for youth in the years to come.

In Serbia, youth unemployment is estimated to be around 44% (by Youth Partnership EU), which is far above the EU average. This problem is exacerbated by the barriers to financial services, promoting a negative cycle that leads to long-term unemployment. Some of the barriers for youth include the high cost of financial transactions, lack of required credit history, no proof of income and the difficulties associated with accessing services in remote areas. Mobile financial services can serve as a solution for youth by providing fast and cheap transactions, a convenient loan application process and e-Wallet solutions that do not require a minimum balance.

Currently Serbia ranks 78th out of 178 countries on the Corruption Perception Index, which is below its neighboring countries of Croatia, Bulgaria, Romania and Hungary. Transparency is a key concern in Serbia, and it is considered to be one of the top three issues affecting the country. Studies show that only 3% of people in Serbia have never been paid bribes. Mobile financial services can directly contribute to diminishing corruption and improving transparency by cutting out

the middle man and reducing the amount of cash in circulation.

Adoption of EU policies critical to the development of mobile financial services in Serbia

In 2009, the EU implemented the Payment Service Directive to unify the European payment market. The goal was to establish a single EU market for payments, making the process easy, efficient and secure through the implementation of the appropriate regulatory framework. In 2011, most EU states are expected to implement the new e-Money directive, which will provide a clear and balanced framework for e-Money. It is critical that the Serbian government follows the EU's lead and adopts similar legislation in Serbia in order to facilitate a successful mobile financial services ecosystem.

In addition, the use of digital certificates and the recognition of qualified digital signatures can be an important step forward for the future of mobile financial services in Serbia. The current success that Serbia is discovering through m-Parking and m-Ticketing should be leveraged and expanded to other micropayment services. Successful mobile payment use-cases can stimulate the rapid adoption of new products with significant economic and social benefits for the country.

Exhibit 16

... reducing number of un-banked 11% by 2020

Financial inclusion increased to 95% in 2020

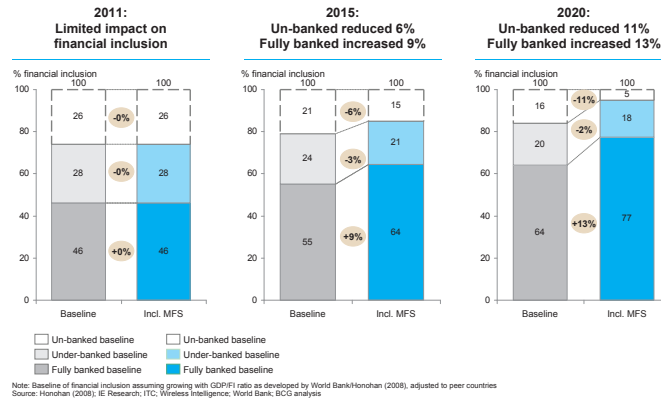


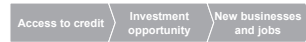
Exhibit 17

Access to MFS could increase GDP 2% by 2020

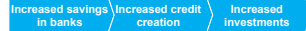
Strong evidence suggests GDP increases with financial inclusion

Selected levers

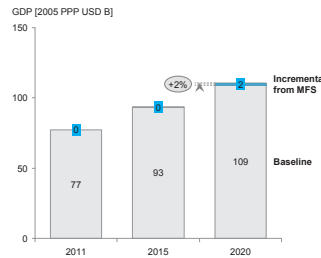
Access to credit facilitates entrepreneurship and new business creation



"Accounting benefit" of building savings within the banking system



MFS could add US\$ 2B to GDP by 2020, an increase of 2%¹



¹ Assuming 1% change in financial development increases growth in real per capita GDP 3.6%. E.g. per GDP/capita of 1,000 growing at 1% p.a. will be increased to 1,010.36. Based on Beck, Demiguis-Kuzin, and Levine (2005) "Finance, Inequality and Poverty: Cross-Country Evidence" and King and Levine (1993) "Finance, entrepreneurship, and growth". Source: EIU, World Bank, BCG experience

Exhibit 18

New business activity could create 23K new jobs by 2020

Translates into jobs for 1 in 20 unemployed

Financial inclusion and access to finance spurs entrepreneurship and new business...

Increased access to finance facilitates entrepreneurship, new business creation and jobs



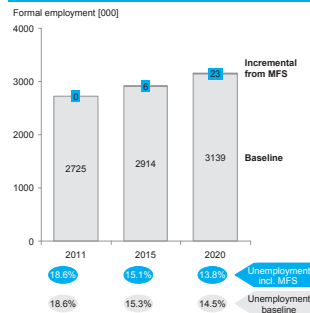
Up to 19K new businesses could be created by 2020 with MFS increasing financial inclusion 11%

- Predominantly among informal entrepreneurs, as existing business owners mostly already have access to finance
- World Bank study finds a 1% increase in financial inclusion leads to 0.51% increase in business creation

Both establishment of new businesses and expansion of current business will contribute to provide new jobs

- World Bank study finds 15% increase in financial inclusion increase employment 1%
- Value chain for serving MFS will also contribute to job creation

... and could create up to 23K new jobs by 2020, an increase of 1.3%



¹ Assuming 15% increase in financial inclusion increases employment 1%
² Asian Social Science (2009): "Dissecting Behaviors Associated with Business Failure: A Qualitative Study of SME Owners in Malaysia and Australia"
 Source: EIU, World Bank, BCG experience, BCG analysis



Methodology

The general approach to modeling adoption is to do an analysis for different products that mobile financial services can offer across different markets. Adoption is modeled separately for the benefits to the individual and indirect economic impact, such as increased inclusion into the formal economy. Further, the social impact of MFS adoption is qualitatively described. Official statistics have been used in developing all projections.

Calculating incremental MFS impact involves three steps:

- Establishing a baseline for key services from 2011 to 2020
- Estimating the incremental uptake per service
- Assessing the economic and social impact

Establishing baseline for key services. The baseline is modeled on the penetration of key services without including potential MFS impact. These financial services are payments, savings, credit, and insurance products. The baseline is based on the correlation with projected GDP growth.

Estimating incremental uptake. The calculation of uptake per service is an estimation of the effect of MFS on the current barriers to financial services adoption. These include the high cost of products on the market, issues of inaccessibility, and product features that are not in line with individuals' needs. The incremental adoption per service calculation is based on a technical s-curve.

Assessing economic and social impact. The analysis of the economic impact that mobile financial services can have

is based on widely-cited studies for each country. The assessment includes the relationship between increased financial inclusion and key measures, such as GDP, job creation, financial services formalization, and the Gini coefficient. Social impact is described qualitatively using case studies.

Estimating Baseline Calculations

The baseline estimations for each country are made up of 2020 GDP per capita forecasts and their correlation with financial inclusion rates. GDP is reported in U.S. dollars at 2005 Purchasing Power Parity for comparison across countries, and is based on estimates made by the Economist Intelligence Unit. Financial inclusion numbers come from a 2008 World Bank study.

The level of the underbanked population versus the fully banked in each country is calculated according to the relation with increased household income, adjusted to peer countries. The current level of the underbanked is based on the uptake of various services. The underbanked have access to a savings account or currently use a savings account; the fully banked use all the primary types of financial services, including savings, bill payment, and credit.

The projected level of the underbanked per country is based on a major U.S. study completed by the U.S. Federal Deposit Insurance Corporation in 2009 called "National Survey of Unbanked and Underbanked Households."

This survey provides an extensive database of financial inclusion rates for various income levels, which are then adjusted to levels of comparable countries for this report. The U.S. study defines the unbanked as having at least one household member with access to a savings or checking account. Underbanked households have a checking or savings account but rely on alternative, informal financial services. The study reports that 93 percent of the population is banked, but 21 percent of this group is underbanked.

Therefore, fully 18 percent of the population is underbanked, including 19 percent of rural households and 16 percent of urban households. Among the banked population, 21 percent are underbanked, and most of those are middle-income with a higher need for products such as instant money orders and credit. The underbanked rate, according to the study, declines steeply with education and age.

Household income and degree of urbanization are strong predictors of access to formal financial services. In addition, ethnic minorities are more likely to be unbanked.

The findings from this study are then used to estimate the current level of underbanking in each of the study countries, adjusted for local conditions.

The baseline forecast for each financial service—bill payment, formal savings account, formal credit product, and insurance—is based on the inclusion estimate and adjusted to service-specific factors.

Estimating MFS Adoption

The pace of MFS adoption is determined by each country's addressable market—the financially excluded population with the potential to adopt mobile financial services—and an adoption curve over time. The model for the uptake of key products is based on product rollout assumptions and benchmarks—an S-curve adoption modeled on historical uptake in the region and the launch year of MFS. The volume per product is based on benchmarks and assumes average country-to-country consumption baskets. The number of transactions per user evolves over time.

The addressable market in each country is made up of those unbanked and underbanked who remain excluded to some extent from financial services. They are not fully banked because formal financial institutions consider their low income as too large a risk, or because the cost of services is too high and the product features do not match individuals' needs.

The adoption of MFS is modeled for each product following an S-curve pattern. This adoption curve assumes the take-up rate will follow the typical logistics curve in each country, given a specific start time and saturation level. The fitting is based on similar services and country-specific parameters, with a basic growth pattern based on historic mobile phone and MFS adoption data. The saturation level is based on GDP and financial inclusion data. The model fits well with historical adoption of mobile services and MFS.

With MFS, the previously unbanked are assumed over the ten years to take on the adoption basket of the underbanked, and today's underbanked to become fully banked.

Economic Impact

The economic impact assessments are all based on established studies, such as *Finance and Inequality: The Case of India* (Ang, 2008) and *Banking the Poor* (IBRD/World Bank, 2009), among many others. A variety of economic and social impact examples from these studies were applied. For instance, on the economic side, a 1 percent increase in financial development reduces the predicted Gini coefficient by 0.066 percent in India, and a 1 percent change in financial inclusion increases annual per capita GDP growth by approximately 0.03 percent.

On the social impact side, the studies show that buffering against financial shocks is of critical importance, as such shocks cause food shortages (32 percent), withdrawal from school (7 percent), and an increase in child labor (9 percent).

Key inclusion ratios are used to calculate the economic impact of MFS. For example, a World Bank study finds that a 15 percent increase in financial inclusion is correlated with an employment increase of 1 percent.

Telenor brings financial services to the world

Pakistan

Telenor and Tameer Microfinance have jointly established the easypaisa service that was launched in October 2009. Services currently available include bill payment, domestic and international remittance, as well as savings and insurance. More than 1.5 million transactions are conducted every month through easypaisa.

Bangladesh

MobiCash in Bangladesh has offered BillPay services for the past four years. This is an agent-assisted utility bill payment services that targets the semi-urban and rural segment. MobiCash also offers ticketing services made available through the mobile phone.

Thailand

ATM SIM in Thailand projects the ATM window onto the end-user's mobile phone, enabling nearly all ATM services on the mobile. This co-branded banking service offers bill pay, fund transfer, balance check and ticket purchase.

India

Uninor customers will be able to purchase movie tickets through their mobile account balance.

Serbia

Telenor Serbia offers Platimo, a complete electronic payment system based on a SIM application. Users can pay their Telenor bills, top up prepaid accounts, authenticate transactions and transfer money.

Hungary

The mobile shopping services offer a wide range of services, including payment for parking and motorway vignettes. The Mobile Payment service allows you to pay for certain products and services, transfer and receive money and settle your Telenor mobile phone or utility bills using your phone.

Malaysia

Digi offers its customers the ability to purchase personal accident insurance. The DiGiREMIT service allows international fund transfers in a convenient and secure manner through mobile phone.

