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Mobile Financial Services and the Underbanked: Opportunities and Challenges for Mbanking and Mpayments

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Executive Summary

This paper focuses on how mobile phones could be used to provide financial services to the underbanked in the United States. The provision of financial services through mobile phones, or mobile financial services (MFS), includes mobile banking (mbanking) as well as mobile payments (mpayments). *Mobile banking* describes only the provision of account information and transaction opportunities, while *mobile payment* is any transaction paid for using a mobile phone. Ultimately, underbanked consumers may benefit most from platforms that integrate both mbanking and mpayments features to provide a truly comprehensive financial services solution. Conservatively, the existing market for underbanked MFS is estimated to be 17.5 million people.

Mobile financial services have grown far more rapidly abroad than in the United States. One important reason is that other countries' mobile industry players have developed common standards in order to bring products to the market. In less developed economies, such as Caribbean and Sub-Saharan African markets, the high mobile penetration in comparison to the land-line infrastructure has allowed users to leapfrog directly to wireless telephony, which in turn facilitates the development of an mbanking industry. Among the key success factors of this international experience are a widespread use of and comfort with SMS technology among target customers, unusually large market share that facilitates critical partnerships with retailers and banks, use of a low-fee/high-volume approach, and identification requirements limited to a national identification card.

Although MFS in the United States exhibits the same degree of market penetration and technological innovation as in other countries, the slow standardization of the fractured wireless market impedes interoperability between users of different carriers. Networks in the United States have taken longer to upgrade to the high-speed capability necessary for optimal use of MFS. And because the United States mobile market is only now approaching saturation, carriers have remained more focused on customer acquisition than on increasing functionality—prioritizing "new subscribers over new services," in the words of one industry observer. More than any other obstacle, industry experts agree that the formation of business partnerships between mutually dependent mobile operators and financial services companies is essential to the development of MFS in the United States. Beyond facilitating the billing of ring tones and game downloads, operators appear unwilling to independently absorb the risks associated with mobile payments. As a result, they must establish linkages with the banking system, either with financial institutions directly or through third-party MFS providers. However, such arrangements also require banks, card issuers, and other financial industry players to change their operating models.

A number of domestic players—mobile operators, banks, prepaid companies, and others—have expressed initial interest in mobile financial services. However, only a small subset has piloted solutions or partnered with MFS platforms to bring products to market.

Successful MFS platforms for the underbanked market would build on, improve, and in some cases replace the financial services that customers already use. The best solutions will go a step further to enable the kinds of transactions that even alternative providers may not provide—such as savings opportunities and access to moderately priced credit. Several products would appear to be strong fits with the technology, including:

- *Merchant Pay:* In March 2006, Scarborough Research found that 50% of Americans without bank accounts had shopped at Wal-Mart stores in the previous 30 days.[1] Indeed, large and chain retailers, such as discount and convenience stores, grocery stores, and gas stations, seem best positioned to make the kind of investments necessary to receive mobile payments—because of both their financial resources and the particular value they receive from speeding and simplifying transactions.[2] If these types of merchants prove to be the earliest adopters of mpayments technology, the underbanked will stand to benefit perhaps even more than other customer groups.

- *Bill Pay:* Consumers without checking accounts generally depend on walk-in services to pay their bills, incurring fees as high as $3 for regular payments and $7 for rush payments. According to Mercator Advisory Group, walk-in bill payments are expected to reach more than $80 billion in volume by 2009.[3] Prepaid card companies have already begun to allow customers to pay bills that can be funded using direct debit, usually for a fee of between $.50 and $3.00.[4] A significant market opportunity may exist through partnerships with major utility companies. MFS providers could offer competitively priced remote bill payment services structured similarly to P2P transfers.

- *Remittances:* In 2004, workers in the United States sent $34 billion to Latin America and the Caribbean, and approximately $6 billion each to India and the Philippines.[5] A 2002 study by the Pew Hispanic Center and the Multilateral Investment Fund found that as many as 43% of Latino remitters in the United States lack any kind of bank account; a greater number may have formal banking relationships but choose to employ non-bank money transfer services.[6] While the fees charged for international money transfers have decreased substantially in the past few years,[7] remittances remain a relatively high-margin business and a key point of entry to immigrant markets—and therefore a potential mobile financial service well worth considering.

- *Person-to-Person (P2P):* At a recent industry conference, a representative of a major national bank indicated that 37% of the remittances channeled through its branches were sent to destinations within the United States. Clearly, there is some need for

[1] Scarbourough Research, March 2006; http://www.sourcemediaconferences.com/conferences/CFSI06/pdf/Jane%20Thompson.ppt.pdf.
[2] ExxonMobil, among other gas retailers, has already demonstrated this with the success of its Speedpass contactless payment system.
[3] "Walk-in Bill Payments to Total $80 Billion in 2009," *Kiosk Marketplace*, July 28, 2006.
[4] K. Jacob, "Stored Value Cards: A Scan of Current Trends and Future Opportunities," The Center for Financial Services Innovation, July 2004, 14.
[5] A. Paulsen et al., "Financial Access for Immigrants: Lessons from Diverse Perspectives," Federal Reserve Bank of Chicago, 2006, 12. Also "Wells Fargo First Major U.S. Bank to Offer Consumer Remittance Service to the Philippines," November 5, 2004, retrieved June 14, 2006, from https://www.wellsfargo.com/wf/press/20041105_Filipinoremittance; and " Wells Fargo and ICICI Bank Launch Overseas Remittance Service Between United States and India," December 1, 2004, retrieved June 14, 2006, from https://www.wellsfargo.com/wf/press/20041201_Indiaremittance.
[6] R. Suro, et al., 2002, 7.
[7] See M. Orozco, "The Remittance Marketplace: Prices, Policy, and Financial Institutions," Pew Hispanic Center, June 7, 2004.

secure methods to send funds domestically among people who cannot write personal checks or deposit to shared accounts. Mobile transfers of funds may provide a solution.

- *Prepaid Top-up and Tie-ins:* Atlantic-ACM recently estimated that the total number of prepaid users will more than double from 24.2 million in 2005 to 55.5 million in 2010.[8] Because prepaid mobile services are particularly popular among immigrants, lower-income consumers and those with poor or no credit, financial services linked to prepaid wireless represent a natural point of departure for MFS targeted at the underbanked.[9]

- *Short-term Credit*: The magnitude of the $6 billion U.S. payday lending industry is just one indication of the strong demand for short-term credit among consumers without easy access to more reasonably priced loan instruments, such as credit cards or bank lines of credit.[10] MFS platforms could add value for credit-underserved customers by offering short-term credit instruments that could be applied for and disbursed via mobile phone. MFS providers would have access to considerable data on their current users' financial behavior, information that would help them better price loans to match each customer's risk profile.

- *Saving*: MFS providers could help spur savings among their customers by offering deposit-mobilizing features among the suites of services. Under such an arrangement, users would have the option to move funds between their active spending "account" and their mobile savings.

For underbanked users of mobile financial services, the ability to easily load money to their phones may prove as important as the ability to spend and transfer funds. Customers without bank accounts or credit cards—the most common source of funds for existing MFS platforms—will require alternative load mechanisms. Options might include direct payroll deposit, designated kiosks or "reverse ATMs" that accept cash, point-of-sale loads through partnerships with retailers, or solutions that "ride on the rails" of existing financial infrastructure, such as prepaid load networks.

In many ways, pre-loaded mobile payments solutions closely resemble prepaid cards. Indeed, they may provide similar benefits to users: better security than cash, reduced risk of overdraft or penalty fees, convenient loading of value, and—in the case of the most advanced cards—opportunities to save, transfer funds among users, and build credit history.[11] Indeed, the line between prepaid cards and mpayments could prove hazy, as many prepaid companies begin to contact customers through text messaging, while at the same time many mpayments platforms seek to overcome the hurdle of POS accessibility through the issuance of branded prepaid cards. One of the most natural applications of MFS technology, then, may be to build on existing prepaid infrastructure, leveraging mobile technology to provide greater accessibility and functionality to prepaid products currently marketed to the underbanked.

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[8] F. Smith et al., " High Tech and Targeted," *Intele-Card News, March 1, 2006.*
[9] K. Hill, "Wireless Data Slowly Extending to Prepaid," *RCR Wireless News*, February 13, 2006, 1. Latinos, notably, are six times more likely to use prepaid cards than the general population. See F. Smith et al., 2006.
[10] Center for Responsible Lending, 2006.
[11] See K. Jacob et al., "Stored Value Cards: Challenges and Opportunities for Reaching Emerging Markets," The Center for Financial Services Innovation, April 2005.

In addition to the industry-wide barriers to successful implementation of MFS in the United States, there are several specific challenges involved in providing MFS to the underbanked market:

- *Security and Privacy*: Issues of security and privacy become far more significant for consumers who depend on their phones not only for communication but also for financial services. For such contingencies, a prepaid card backed up with IVR and/or online functionality may prove doubly useful.

- *Regulatory Issues:* Complex regulatory issues surround mobile financial services at both the state and federal levels. Many regulatory issues facing MFS stem from providers' likely categorization as money services businesses, or MSBs. In a 1999 ruling, the U.S. Secretary of the Treasury determined that all MSBs must comply with all applicable provisions of the Bank Secrecy Act.

- *Pricing*: For this segment, prices must be not only competitive with existing alternatives but also transparently structured.

- *Accessibility:* Like any other service, MFS platforms will not add significant value for consumers unless they are easy to use. The most successful products will be those that allow underbanked users to integrate MFS seamlessly into their everyday lives.

MFS in the United States may finally be taking off, after years of lagging behind other countries. There are many new technologies and product offerings that may speed the adoption of MFS, but also many questions that must be answered. As MFS providers begin to resolve these issues and deliver products to end users, they should look to the underbanked as a promising potential market in light of its size, demand for new forms of financial services, and demonstrated willingness to embrace mobile technology. Unlike customers with multiple payment and banking options, underbanked consumers could transfer most of their transactions to their mobile phones if presented with attractive, secure, and accessible MFS products.

Introduction

Mobile phones have become an indispensable feature of life in the United States as tools for communication, entertainment, and information retrieval. For the millions of Americans who have downloaded paid games and ring tones using mobile phones, the phones also serve as a de facto payment mechanism. Because of their ubiquity, accessibility, and ever-increasing functionality, mobile phones promise to become a gateway to financial services far more complex than these small-scale payments. Internationally, consumers are already using their mobile phones to access bank accounts (known as mobile banking, or *mbanking*) and to load, transfer, and spend money (mobile payments, or *mpayments*). In the United States, mbanking and mpayments first began generating significant attention in 2000, but industry interest and investment capital waned with the subsequent internet bust.[12] In the past two years, however, companies, investors, and industry observers, encouraged by full-scale implementations abroad and limited but successful domestic pilots, have once again begun to treat the various forms of mobile financial services (MFS) as a compelling business opportunity.

This paper focuses on how mobile phones could be used to provide financial services to the underbanked in the United States, a diverse and sizable market segment. In addition to market research, interviews with industry leaders form the basis of the analysis in this paper. We begin with a general overview of the MFS industry, highlighting the most prominent barriers to entry for mobile operators, financial institutions, and other players. The next section discusses the potential market opportunities for MFS providers who reach out to underbanked consumers. The paper concludes with a discussion of the challenges specific to companies seeking to serve the underbanked market. Key findings include the following:

- There is a significant population of potential MFS users among the underbanked in the United States, conservatively estimated at more than 17.5 million people.
- MFS are already being targeted to this group, but there is substantial room for growth in terms of product mix and points of access, as well as integration with existing products, such as prepaid cards.
- Acceptance of MFS among the underbanked will depend on such factors as cost, distribution method, and usability. However, the high adoption rates of new mobile technologies by the demographic groups most likely to be underbanked bode well for the eventual acceptance of MFS—if appropriate products are brought to market.

[12] "Random Notes," *BAI*, February 15, 2006, retrieved August 4, 2006, from http://www.bai.org/nl/v1/n12/articles/V1_N12_random.asp?WT.mc_id=BSRDI_ARTICLEARCHIVE_V1_N12_random.

Who Are the Underbanked?

Though definitions vary, this paper uses the term "underbanked" to describe consumers who have no more than one transaction account in a traditional financial institution, such as a bank or credit union. Underbanked consumers rely on alternative providers, including check cashers and payday lenders, for some or all of their financial transactions. Though estimates vary, the underbanked clearly represent a significant portion of the population of the United States, as many as 40 million households. At least half of the underbanked have some kind of transaction account yet lack deeper asset-building and credit relationships with financial institutions. Despite their weak links to banks, the underbanked constitute a substantial market for financial services, spending at least $13 billion per year on more than 340 million non-bank transactions alone.[13]

Research suggests that the underbanked tend to be younger and less educated, with lower incomes than the general population.[14] Nonwhite families are four times more likely to lack a bank account than white families.[15] Notably, the fastest growing demographic segment in the United States is also profoundly underserved: 35% of all Latinos and 53% of Mexican immigrants do not have bank accounts.[16] However, despite their limited use of traditional financial institutions, underbanked people exhibit a strong desire to save and invest their money. New technologies, such as mobile financial services, may help financial institutions serve the underbanked in ways that are profitable for both companies and customers.

Background on Mobile Financial Services

Overview

The term "mobile financial services" (MFS) encompasses a broad range of financial activities that consumers engage in or access using their mobile phones. MFS can be divided into two distinct categories: mobile banking (mbanking) and mobile payments (mpayments).

Mobile banking describes the use of mobile-phone–based interfaces to provide account information and transaction opportunities to customers of financial institutions. From a user perspective, mbanking services may be active, such as client-driven account inquiries and transfers, or passive, such as automatic low-balance notifications. Customers using mobile banking gain increased convenience and access, as well as the opportunity to detect account problems such as insufficient funds. Many mbanking services simply reproduce banking

[13] CFSI estimate.
[14] E. Seidman et al., "A Financial Services Survey of Low- and Moderate-Income Households," The Center for Financial Services Innovation, July 2005, 5.
[15] K. Bucks et al., 2004, A11.
[16] Pew Hispanic Center/Kaiser Family Foundation, "2002 National Survey of Latinos: Summary of Findings", December 2002; retrieved August 7, 2006, from http://pewhispanic.org/files/reports/15.pdf. See also S. Rhine et al., "The Bank Status Decision of the Foreign Born," 2004; retrieved August 7, 2006, from http://www.chicagofed.org/news_and_conferences/conferences_and_events/files/financial_access_for_immigrants_rhine.pdf. The Rhine et al. presentation relies on data from the 2000 Survey of Income Program Participation (SIPP).

services already available online, with similar benefits for financial institutions: enhanced customer satisfaction and loyalty, along with increased account activity and related fee income without the operational costs associated with bricks-and-mortar banking. Mbanking may also provide banks with targeted marketing opportunities that facilitate cross-selling. Presently, there are no known examples of U.S. banks that, following the model of internet-only banks, operate exclusively through mobile channels.

A *mobile payment* is any transaction paid for using a mobile phone. The term describes a wide array of transactions, from the purchase of ring tones to person-to-person (P2P) money transfers. From a location perspective, mpayments can be conducted remotely (top-up of mobile minutes for prepaid accounts, purchase of ring tones and games, and P2P transfers) or locally, using enabled mobile devices that communicate with devices installed at public transit turnstiles, merchant POS, ATMs and other points of access. Charging method represents another important distinction among types of payments. Mpayments may be "prepaid" (either with phone minutes or through a prepaid platform loaded with cash), "pay-now" (in which the payment occurs in real-time or "near real time" in the case of debit cards), and "postpaid" (charged after the fact to the user's phone bill, credit card, or bank account). Finally, mpayments may be classified according to their value: micro payments (under $2), mini payments ($2 to $20), and macro payments (over $20), although these terms are not generally accepted definitions.[17]

The terms "mobile banking" and "mobile payments" describe distinct but in some cases overlapping sets of products. Some mbanking platforms provide services, such as money transfers, that are considered forms of mobile payment, while some mpayments products are so closely linked to bank accounts as the source of funds that they assume mbanking functions. And while banks are most visible as the institutions supporting mbanking platforms, given the structure of the payments industry, they will play a key role in settling mpayments whether or not bank accounts represent the source of funds. Ultimately, underbanked consumers may benefit most from platforms that integrate both mbanking and mpayments features to provide a truly comprehensive financial services solution.

MFS Technology

Mobile financial services can be offered using a variety of technological platforms, each with advantages and disadvantages. The following discussion briefly highlights the merits and drawbacks of the best known MFS technologies in the United States—SMS and NFC—followed by a description of other relevant solutions for the U.S. market.

Many mobile users are familiar with SMS (Short Messaging System) as a method for sending text messages between phones, as well as for the purchase of post-billed data services like ring tones and downloads. Using carrier-approved short-codes, MFS users can also employ SMS to conduct basic mbanking functions and to send funds to the mobile accounts of third parties,

[17] Information in this paragraph is based largely on S. Karnouskos et al., "Mobile Payment: A Journey through Existing Procedures and Standardization Initiatives," *IEE Communications Surveys,* Fourth Quarter, 2004.

such as fellow users, merchants, and billing agents.[18] To load, store, send, and receive funds, customers of domestic SMS-based solutions such as PayPal and Obopay must open accounts independent of their wireless service; internationally, these functions may be built into the services offered by mobile operators. SMS allows users to engage in transactions independent of location; thus, point-of-sale payments using SMS look no different than remote payments. Though local SMS payment is certainly technologically possible (and used extensively in countries such as Norway and Japan for small purchases like vending-machine concessions), little momentum seems to be building in the United States for SMS payments at point of sale. Instead, a number of SMS-based MFS platforms provide linked prepaid debit cards that enable card-based payment.

Developed by Sony and Philips in 2002, Near Field Communication (NFC) consists of a "standards-based, short-range wireless connectivity technology" that permits communication between enabled devices.[19] For use in mobile phones, NFC tags may be attached to headset covers or incorporated directly into phone hardware. NFC is compatible with the Radio Frequency (RF) contactless standard currently used in cards, tags, and fobs, such as MasterCard's successful PayPass product, but it also enables additional mobile functionality. As a result, the merchant locations that currently accept RF contactless payments (including a number of high-profile fast-food and retail chains) will in theory be able to receive payment from NFC-enabled phones.[20] Like existing RF products, NFC will likely leverage the card-payment networks already in place by linking to users' association-branded cards.[21]

Unlike the contactless payment tags currently available, when built into phones NFC devices can be linked to "mobile wallets" that allow access to multiple accounts or cards. Limited by definition to local (non-remote) transactions, NFC technology can be also be used to "top up" prepaid mobile accounts at merchant load stations, or to facilitate in-person transfers between two users with NFC-enabled headsets. Supporters of NFC maintain that the technology will prove more user-friendly than SMS-based payments at point of sale and even faster than traditional cards or cash. Broader adoption, however, will require certification of the technology, standardization across mobile carriers and financial institutions, and, most notably, substantial investments by retailers in POS infrastructure.

An alternative to SMS and NFC technology is to provide access to online banking and payment platforms through users' mobile phone internet browsers. To make this possible, online content must be resized to fit small-screen cell phones, most likely through the creation of dedicated websites. The relatively slow speed of many users' mobile-based web access may also be a significant obstacle. The final barrier is cost; mobile users connecting to the internet generally pay substantial fees for premium digital content, whether in the form of a higher monthly subscription or per-use charges. Though internet-based MFS may appeal to some customers,

[18] According to media reports, a prominent mobile operator in the United States recently refused to transmit messages using short codes to an SMS-based mobile payments service. Instead, the carrier's customers must use a call-in line. D. Wolfe, "Why Cingular's Allying with a P-to-P Upstart," *American Banker*, June 9, 2006, 1.
[19] "About NFC Technology," retrieved August 4, 2006, from http://www.nfc-forum.org/aboutnfc/about_nfc_technology See also "Mobile Payments: Contactless Key to Mobile Payments at POS," *Electronic Payments International*, May 31, 2006, 10.
[20] Smart Card Alliance, "Mobile Payments at the Physical Point-of-Sale: Assessing U.S. Market Drivers and Industry Direction," April 2005, 23-24. This report can be downloaded free from the Smart Card Alliance website: http://www.smartcardalliance.org/alliance_activities/mobile_payments_pos_report.cfm.
[21] *Electronic Payments International*, 2005.

particularly for mbanking functions, in general there seems to be relatively little industry enthusiasm for this approach.

International Examples

Mobile financial services have grown far more rapidly abroad than in the United States, driving the creation of innovative products and services that remain unavailable domestically. Key reasons why MFS have proven more successful in some countries than others are variations in the structure of mobile industries and the presence of legacy systems, the competitive landscape for financial services in each country, and the relative availability of competing technologies.

One important variable has been the ability of the various players in each country's mobile industry—operators, equipment manufacturers, and financial services partners—to develop common standards for bringing products to market. For example, the widely cited success of Japanese network operator NTT DoCoMo's FeliCa Mobile Wallet (a chip built into headsets that can be read by scanners for mobile payments, similar to NFC) in part reflects the company's control of "every aspect of its handsets and networks"; in countries with less vertically integrated mobile industries, progress is inevitably slower.[22] MFS have also been faster to take off in Japan, analysts note, because of the particular characteristics of the country's financial services industry. Because relatively few Japanese use credit cards, they may find mpayments systems more attractive than do consumers in countries with many card offerings.[23]

MFS have also made inroads in emerging economies, such as Caribbean and Sub-Saharan African markets, where mobile phones are far more widespread than opportunities for both traditional and online banking.[24] In these countries, analysts say, relatively high mobile penetration can be traced to the lack of legacy land-line infrastructure; users have "leapfrogged" directly to wireless telephony. In the Caribbean, for example, a company executive reports that MoreMagic's mobile payment solution has earned customers by enabling people to purchase prepaid minutes directly through their mobile phones. According to a company representative, the service has proved invaluable when natural disasters have hindered all forms of communication other than wireless.

The following country profiles suggest the diversity of the international MFS industry as well as the common challenges that mobile banking and payment platforms must overcome to achieve scale and make the commitment to serve the underbanked.

KOREA: APPROACHING MASS MARKET PENETRATION

Together with Japan, Korea represents one of the most active and profitable MFS markets, particularly for mobile banking. More than 1.8 million of South Korea's 38 million mobile phone subscribers use mobile banking of some kind. Korea's Kookmin bank has by far the largest

[22] "Pay with a Wave of Your Phone," *The Economist*, July 23, 2005.
[23] *Ibid.*
[24] D. Joelson, "Caribbean Banks Welcome a Sea of New Systems," *Bank Technology News,* November 2005, 41.

market share, operating 35% of all mbanking transactions and offering an array of mbanking services, from remittance services to mobile stock trading.[25] By the second quarter of 2004, mbanking transactions in South Korea had reached $2.2 billion in total value.[26] Most mbanking services in Korea are free to users, though customers absorb the charges associated with using the internet or text message functions on their phone to perform transactions.[27] Though they are often provided without charge, reports suggest that mbanking services have helped Korean financial institutions become more profitable by reducing the transaction costs associated with ATMs, telephone banking, and card issuance.[28]

Notably, telecommunications companies rather than banks have driven the growth of the mbanking industry in South Korea, obligating financial institutions like Kookmin to secure partnerships with telcos to participate in the market. Though such partnerships have clearly proven fruitful to date, many observers of the Korean market question whether the telcos may ultimately forgo cooperation in favor of direct competition with banks, leveraging their technological competency to develop superior proprietary platforms. The Korean case suggests at once the broad commercial potential for mbanking and the potential tensions associated with platforms built through cross-industry collaboration.

SOUTH AFRICA: FOCUSING ON THE UNDERBANKED

The three largest banks in South Africa now offer some form of mobile banking, thanks in part to the acceptance of a single mbanking standard by the country's three cellular operators.[29] Yet in contrast to mass market orientation of Korean MFS, in South Africa mobile financial service technologies have been targeted explicitly to the underbanked. Approximately 35% of the country's 16 million residents without bank accounts are estimated to own a cell phone—a context similar to that of the United States.[30] MFS technology has proven a particularly promising method for reaching residents of rural townships with few traditional financial institutions and a large unmet demand for financial services. The South African company Wizzit, a division of the South African Bank of Athens Ltd., allows users to conduct phone-to-phone payments, pay bills, and buy airtime using SMS technology. The companion Wizzit MasterCard–branded debit card can be used to make purchases, withdraw cash from ATMs, and receive cash back from stores in the Wizzit network. Notably, Wizzit makes it convenient for its geographically isolated users to convert cash into mobile currency; customers without access to banks can deposit cash at any post office and receive an immediate credit to their account. South African MFS solutions such as Wizzit offer a straightforward model for serving previously underbanked clients in locations where traditional bank branches may not be economically viable.[31]

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[25] P. Hoflich, "Telcos: Friends or Foes in Mobile Phone Banking?" *The Asian Banker Journal,* June 15, 2006.
[26] "M is for Money…and Mobile Devices," *Financial Services Distribution*, January 31, 2005, 4.
[27] "Banks to Launch Free All-In Mobile Service," *Chosun* (Korea), July 7, 2005.
[28] Hoflich, 2006; see also K. Stout, "Dialing up to Do Business," *Cnn.com*, March 31, 2005.
[29] ITWeb, "South Africa: Banking via SMS." *Africa News,* March 10, 2006.
[30] Wilson, 2006.
[31] For more on South African trends in serving the underbanked and their applicability in the U.S., see Dorsey and Jacob, "Financial Services Trends and Innovations in South Africa: Lessons for the United States," The Center for Financial Services Innovation, 2005.

PHILIPPINES: MAKING THE BUSINESS CASE FOR MOBILE FINANCIAL SERVICES[32]

SMART Communications, Inc., provides wireless services to 15.4 million subscribers, and to an additional 5 million through its subsidiary, Pilipino Telephone Corp—a combined market share of more than 60%. Its mobile financial services products are used by 2.5 million of its subscribers, many of whom have no other formal financial services relationships.

SMART began offering SMS-based financial services in 2000, but with relatively little success. In 2004, SMART created a nationwide network of retailers through which customers could load airtime directly to their phones without using scratch cards. With this infrastructure in place, customers also could more easily load and withdraw cash from their mobile wallet accounts. SMART has since leveraged its market share to convince merchants and utility companies to accept mpayments from its phones. SMART's bank partner, Banco de Oro (BDO), holds all cash that passes through the network and takes full responsibility for compliance and account protection.

SMART offers its customers a suite of financial products, which work on any SMS-enabled headset:

- Cash deposits and withdrawals at authorized retail locations
- POS purchases; optional account-linked debit card
- Bill payment
- Direct deposit from payroll
- SMART Load: recharges airtime credit in small amounts from mobile account
- SMART Pasa Load: transfers airtime credit to other users' accounts
- SMART Padala: allows Filipinos abroad to send remittances to SMART users at home
- Automatic text messages for every transaction; free mobile consultation of account balance

SMART earns all of its revenue from transaction-based fees: $.05 per user-generated SMS activity; $.02 for retail purchases; $.06 for BDO ATM withdrawals and $.21 for non-BDO ATM withdrawals; 1% fee for cash deposits and withdrawals in retailer network. (These charges are consistent with the low transaction fees charged in the Philippine mobile market—normally $.02 for standard SMS text messaging and $.60 for mobile credit top-ups.)

SMART reports the following results:

- Mobile wallet revenue growth of 46% in 2005, though total revenues ($2.5 million) remain insignificant by U.S. standards.

[32] G. Zingapan, "Increasing Commerce via Mobile Payments," *Business World (Philippines)*, July 10, 2006, S3/1. P. Lustre, "Break up PLDT, Globe to Promote Competition," *Manila Standard,* June 15, 2006. Smart Communications, Inc., Company Profile, retrieved August 4, 2006 from http://www.smart.com.ph/SMART/About+Us/Company+History/. InfoDev, "Micro-Payment Systems and Their Application to Mobile Networks," January 2006; retrieved August 4, 2006, from http://www.infodev.org/files/3014_file_infoDev.Report_m_Commerce_January.2006.pdf.

- One million overseas users of SMART's remittance service (13% market share); SMART operates $50 million per month in international transfers.
- Interest-bearing cash float of $10 million reported by banking partner BDO.
- Significant reduction in customer churn: 3% rate for non-users, .5% for users.

KEY SUCCESS FACTORS

- Unusually large market share facilitates critical partnerships with retailers and BDO.
- Targeted to needs of low-income users through low-fee/high-volume approach.
- Identification requirements limited to national identification card; no credit check conducted.
- Widespread use of and comfort with SMS technology among target customers.

MFS in the United States

The analysts and company leaders interviewed for this paper agree that mobile financial services have not exhibited the same degree of technological innovation and market penetration in the United States as in many international markets. They cite a number of obstacles—regulatory, market, technological, and cultural—that must be surmounted to permit the growth of the domestic MFS industry. From a regulatory perspective, federal and state banking regulations may circumscribe the financial services that telecommunications companies can provide. As a result, carriers may be obliged to partner with banks or third-party providers, slowing the development of MFS solutions. At the same time, the country's fractured wireless market slows standardization and impedes interoperability between users of different carriers; one industry expert points to the time it took SMS technology to achieve full interoperability as an analogous case.

Other analysts fault technological factors: networks in the United States have taken longer to upgrade to the high-speed capability necessary for optimal use of MFS. Meanwhile, the continued lack of dependable, universal wireless coverage, even in metropolitan areas, renders MFS alternatives like online banking more reliable and user-friendly. And because the United States mobile market is only now approaching saturation, carriers have remained more focused on customer acquisition than on increasing functionality, prioritizing "new subscribers over new services," in the words of one industry observer. Finally, some experts suggest that consumers in the United States may be less willing to engage new technology than in other markets, such as Korea and Japan. This lack of consumer demand may also help to explain why mobile operators and financial institutions in this country have not pushed harder to make MFS available to their customers.

More than any other obstacle, industry experts agree that the formation of business partnerships between mutually dependent mobile operators and financial services companies is essential to the development of MFS in the United States. Beyond facilitating the billing of ring tones and game downloads, operators appear unwilling to independently absorb the risks associated with mobile payments. As a result, they must establish linkages with the banking system, either with financial institutions directly or through third-party MFS providers. However, such arrangements also require banks, card issuers, and other financial industry players to change their operating models. For NFC payments solutions linked to credit cards, for example, card issuers must be willing to cede control of the payment device itself to headset manufacturers and mobile operators—a step they have been slow to take. The following chart describes each player's motivation for providing MFS as well as the barriers to entry they are likely to encounter:

PLAYER	VALUE PROPOSITION OF MOBILE FINANCIAL SERVICES	BARRIERS TO ENTRY
Mobile operators	• Increase average revenue per user (ARPU) • Reduce customer churn • Access new customer segments	• Not all MFS models have built-in source of fee revenue for carriers • Too small a share of fee income once partnerships are in place • Insufficient demand from end users to justify upfront investment in some solutions • Reputation risk if products disappoint customers • Credit risk associated with supporting payments through billing
Headset/component manufacturers	• Increase per-unit revenue through new hardware/software features • Gain point of differentiation from competitors	• Insufficient demand from networks/end users to justify upfront investment • Existing platforms such as SMS offer few new opportunities for manufacturers
Banks	• Earn interest income on cash float for mpayments methods; some fee income • Access new customer segments with reduced operational and overhead expense • Create pathways for mobile customers into higher-value products • Gather customer data and access direct marketing opportunities • Reduce customer churn	• Insufficient demand from networks/end users in light of available alternatives (online and IVR services) • Too small a share of fee income once partnerships are in place • Low balances and volume reduce limit cash float • Regulatory issues • Risk-management concerns
Card associations	• Increase share of transactions paid with credit and debit cards • Reduce fraud through mobile-enabled authentication schemes	• Loss of control over payment device
Prepaid companies	• Increase ARPU through increased account activity • Leverage existing technology/products/networks to reach new markets	• Too small a share of fee income once partnerships are in place • Ongoing difficulty engaging bank partners in current regulatory and risk-management environment
Merchants	• Speed customer transactions • Increase impulse and small-volume transactions • Vehicle for loyalty and rewards programs	• Significant infrastructure investment required for some technologies (such as NFC) • Some technologies (such as SMS) may slow transactions compared to traditional payment methods

Beyond the specific challenges that will be encountered by individual players, a number of general questions face the nascent MFS industry in the United States:

- *Security* – How will MFS providers balance convenience and security to ensure that both users and providers are fully protected against fraud, data theft, and other threats?
- *Reliability* – Will the mobile financial services infrastructure prove dependable enough to attract and retain customers?
- *Regulatory concerns* – Which party will bear responsibility for compliance and consumer protection? How will an increasingly rigorous regulatory environment for money services businesses (MSB) affect the provision of MFS?
- *Partnership models* – What kinds of revenue-sharing arrangements will entice key players without proving prohibitively expensive for end users? Under these agreements, which party will "own" the end-user relationship?
- *Achieving necessary volume* – Given these multiple claims on revenue and the inevitable constraints posed by customer willingness to pay, how will MFS platforms acquire the many millions of users needed to ensure profitability?
- *Network effects issues* – How can MFS providers construct a convincing business case for merchants and distribution networks while still building a critical mass of established customers?
- *Legacy systems* – To what degree will legacy systems hinder the development of new MFS solutions?

These issues, which have been discussed widely in industry white papers and the popular press, do not constitute the focus of this paper. However, several are addressed in the "Challenges" section, in light of their potential impact on providing MFS specifically to underserved markets.

Emerging Domestic Players

A number of domestic players—mobile operators, banks, prepaid companies, and others—have expressed initial interest in mobile financial services. However, only a small subset has piloted its own solutions or partnered with MFS platforms to bring products to market.

In the mobile banking space, Citigroup has launched the free CitiMobile service, which includes basic mbanking services, such as account balance consultation, fund transfer, and bill payment.[33] JP Morgan Chase customers can sign up to receive text message alerts to their phones indicating activity such as deposits and overdraft; the service does not yet allow users to actively consult their accounts.[34] Other banks with operations in the United States, such as HSBC and Bank of America, have rolled out extensive mbanking services through international affiliates but have not yet announced plans to introduce similar services in the United States.[35] Arguably, the most advanced mbanking offering comes from Banco Popular. The bank, which has branches in six U.S. states and throughout the Caribbean, allows users to consult their account balances by text message and sign up to receive notifications for various types of

[33] "Citibank Introduces CitiMobile," PRNewswire.com, April 2007, http://www.prnewswire.com/mnr/citimobile/27674/.
[34] I. Augustums, "Shout-out to Gen Y," *The Dallas Morning News*, June 4, 2006, 1D.
[35] Retail Banker International, 2006; Deloitte, 2006; D. Wolfe, "Motorola Develops Bill-Pay Tool for Phones," *American Banker*, February 13, 2006, 8.

account activity. The free service is currently available to users of Centennial Puerto Rico, Cingular, Movistar, and Verizon.[36]

In the mpayments industry, since December 2005, an NFC trial being conducted at Philips Arena in Atlanta has received considerable attention. The trial involved mobile operator Cingular, headset vendor Nokia, Visa, JP Morgan Chase as issuing bank, chip-provider Philips, VivoTech, which makes NFC readers, and content provider Atlanta Spirit. Participants received cell phones with NFC-enabled backplates that allowed them to buy concessions at the stadium, as well as to download ring tones and information. While reports suggest that the trial was successful, the companies involved have made no public indication that they intend to pursue longer-term business collaborations.

Among domestic mobile carriers, Cingular, currently being rebranded as AT&T, is on the front edge of the market as it announced its mobile banking alliance with enabler Firethorn Holdings, a mobile transaction streamlining company.[37] In March 2007, AT&T signed a partnership with Wachovia Corp. and other banks that will allow subscribers of its Cingular brand to check account balances, transfer funds, and receive or pay bills. The Firethorn technology connects with Firethorn's servers, which then communicate with the users' bank systems.

In addition to major mobile operators like Cingular, mobile virtual network operators (MVNOs) have demonstrated their growing interest in the MFS market. As resellers of wireless services, MVNOs frequently target niche markets such as youth and ethnic minorities that mobile operators would otherwise have difficulty accessing. Consequently, MVNOs may prove particularly attuned to MFS opportunities among their customer bases. They may also provide major mobile operators with the opportunity to experiment indirectly with MFS without the risk of public failure. AMP'd Mobile, a youth-oriented MVNO with a focus on multimedia content, has announced a partnership with mobile payments company Obopay.[38] Virgin Mobile, another youth-focused carrier, will launch a prepaid Visa debit "Stash" card with prepaid provider NetSpend. The product's mobile-based features include P2P transfers and text-based account alerts.[39] Movida, an MVNO targeted to the Hispanic market, has signaled plans to offer a mobile-linked prepaid debit card that will facilitate top-ups and provide an "opportunity to develop credit for [the] un-banked population." Movida's mpayments solution will also integrate the prepaid debit card and phone to provide wireless remittance services, in addition to wireless transaction and balance alerts.[40]

Manufacturers have also attempted to establish a foothold in the emerging MFS market. Early in 2006, mobile phone maker Motorola announced the M-Wallet Solution, an application that users would download directly to their phones through their mobile internet connections. M-Wallet includes such features as bill payment (linked to online bill-payment service providers), point-of-sale payment, and money transfers, and would be funded by credit, debit, or gift cards stored in

[36] Customers pay any normal charges associated with SMS texts levied by their wireless carriers. See Banco Popular, "Mobile Banking," retrieved August 5, 2006, from http://www.popular.com/pr/help/eng/movil-faq.html.
[37] M. Alleven, " Cingular Banks on Firethorn," *Wireless Week*. November 17, 2006; retrieved January 12, 2007, http://www.wirelessweek.com/article/CA6393168.html.
[38] C. Gibbs, "Mobile Payment Pool Getting Crowded," *RCR Wireless News*, July 24, 2006, 12.
[39] "Virgin Mobile USA Launches Prepaid Visa Debit Card with NetSpend," *PR Newswire US,* July 31, 2006.
[40] Movida, "Upcoming Services," retrieved August 4, 2006, from http://www.movidacelular.com/movida_english/movcorpsol.html.

the phone. According to media reports, the solution also permits users to make payments from prepaid wireless accounts, or have payments charged to their monthly phone bills.[41] Motorola must now broker deals with wireless carriers to bring the service to end users. In February 2007 Motorola announced an early trial of the M-Wallet solution in conjunction with Morgan Stanley. This pilot will allow 1,000 Discover Card clients in the Chicago and Salt Lake City areas to use their Motorola phones as a means of payment.

Another significant payments development comes from Giesecke & Devrient[42] (G&D) and MasterCard International, which have announced the development of a secure over-the-air (OTA) personalization scheme.[43] "Customers wanting to enable (MasterCard®) PayPass with their phone, make a one-time request to their bank to register them for the service. Data is sent over the carrier network and then automatically loads and activates the PayPass payment application in the mobile phone while personalizing the phone's built-in 'secure area' with the customers' payment account details."[44] This technology permits card issuers to securely load accounts to customers' mobile phones without accessing the phone's SIM card or creating vulnerabilities for the phone's NFC chip. During the first quarter of 2007, Citibank, MasterCard, and Cingular began testing the technology in the United States, in the New York City market, using NFC-enabled Nokia headsets.[45]

Similarly, MasterCard Worldwide, in association with GSMA,[46] has also launched a pilot for a global program that will link the local payment systems run by mobile operators with those of local banks to let international migrant workers transfer money home through their cell phones. The mobile operators will collaborate with banks at the local or regional level, while MasterCard Worldwide will provide the international authorization, clearing and settlements.[47]

Finally, in the past two years, a number of mobile-oriented financial services companies have entered the market or announced their intention to do so. Most are start-ups, some of which have received substantial venture funding. A notable exception is PayPal, which has leveraged its successful online payment platform with more than 100 million users to begin to provide

[41] "Mobile Banking on the Move at Last," *Retail Banker International*, March 18, 2006, 3.
[42] Giesecke & Devrient supplies bank securities printing, automatic currency processing equipment, smart cards, electronic payments, and IT security.
[43] M. Friedman, "Mobile Payments in the United States: SMS and NFC Implementations Enter the Market," Mercator Advisory Group, April 2006. See also "Europe Tries Out Contactless Payments," *Electronic Payments International*, July 31, 2006, 3.
[44] http://www.paymentsnews.com/2006/04/giesecke_devrie.html.
[45] http://www.mastercard.com/us/paypass/mobile/help/faqs.html#q11.
[46] An organization representing mobile operators with networks in more than 100 countries.
[47] http://ca.news.yahoo.com/s/capress/070212/technology/technology_mastercard_mobile_phones.

mobile payments services.[48] Notably, many of the MFS providers consider acceptance by mobile operators the largest barrier to large-scale market entry. The following table provides a brief overview of the most prominent players.

[48] D. Wolfe, "In Brief: PayPal Account Total Surpasses 100M," *American Banker*, February 15, 2006.

Current MFS Product Offerings

Key:
(1) Merchants register to participate
(2) Uses existing payments infrastructure
(3) Through linked prepaid debit card
(4) IVR works on all US mobile phones

Product	Status	Technology	Participating Carriers	Selected Financial Services Industry Partners	Source of Funds	Services Provided					
						Participating Merchant Pay (1)	General POS Payment (2)	ATM Withdrawal	P2P Transfers	Account Information (User Generated)	Account Information (Provider Generated)
KushCash	Live	SMS and proprietary application	Cingular	MasterCard, Meta Payment Systems	**Load from**: debit card credit card		X (3)	X (3)	X	X	X
MobileLime	Live	IVR and SMS	Works on all SMS-enabled mobile phones (4)	Vision Payments Solutions LLC	**Linked to:** debit card credit card prepaid card bank account (ACH)	X					X
M-Via	Awaiting rollout	SMS, proprietary Java application, internet browser, live service agent	(To be determined)	(To be determined)	(To be determined)		X (3)	X (3)	X	TBD	TBD
Obopay	Live	Proprietary application or SMS or internet browser	Works on all SMS and WAP-enabled phones; application permissions pending	MasterCard, Diamond Systems	**Load from:** credit card bank account (ACH) load network center check/money order	X	X (3)	X (3)	X	X	X

Note: We have attempted to represent product attributes as accurately as possible based on publicly available information and company interviews.

PRODUCT	STATUS	TECHNOLOGY	PARTICIPATING CARRIERS	SELECTED FINANCIAL SERVICES INDUSTRY PARTNERS	SOURCE OF FUNDS	PARTICIPATING MERCHANT PAY (1)	GENERAL POS PAYMENT (2)	ATM WITHDRAWAL	P2P TRANSFERS	ACCOUNT INFORMATION (USER GENERATED)
PayPal	Live	SMS or IVR	SMS service works on Alltel, Sprint, T-Mobile, Verizon (4)	(No information made available)	**Linked to:** PayPal account	X			X	
PayWi	Regional pilot	SMS and proprietary application	(No information made available)	(No information made available)	**Linked to:** credit card bank account	X			X	
TextPayMe	Beta	SMS	(No information made available)	(No information made available)	**Load from:** bank account (EBT)				X	X

MFS Opportunities in the Underbanked Market

The MFS industry in the United States, though incipient, features a diverse group of players, technologies, and product offerings. To date, no MFS solutions have emerged that are specifically targeted to the underbanked, though many company leaders recognize that the financially underserved could eventually constitute an attractive customer base. This section addresses the significant opportunities for MFS within this segment, beginning with a discussion of the characteristics and estimated size of the underbanked mobile market. We then lay out the specific needs of underbanked consumers in the context of existing MFS product offerings, concluding with concrete strategies for best reaching this potential customer group.

Mobile Phones and the Underbanked

The industry association CTIA estimates that there are currently 217.4 million wireless users in the United States.[49] Though no definitive data exists on cell phone usage among the underbanked, mobile technology has become increasingly popular among the demographic groups most likely to be financially underserved. While mobile usage remains greatest among high-income groups, recent research shows a pattern of adoption among younger users who have less income and education.[50] Ethnic minorities are also increasing their use of mobile phones. The market research firm Mintel reports that as of 2004, 57% of Hispanics owned mobile phones, compared to the 65% penetration rate in the general population. Notably, both Asians and blacks now surpass whites in terms of mobile usage, with 68% and 66% penetration rates, respectively.[51]

Significantly, these more recent users tend to employ their mobile phones in different ways than the general public, often assigning phones a greater importance in their everyday lives. According to the Pew Internet and American Life Project, young and nonwhite users are significantly more likely to claim that "they can't live without their cell phones." The Pew study also identifies a subpopulation of "cell only" users who do not have land lines (largely for financial reasons) and who are "disproportionately male, under age 30, nonwhite, unmarried and from households … earning less than $30,000."[52] A study by the Tomás Rivera Policy Institute notes that of all ethnic groups in the United States, Hispanics are the most likely to give up land lines in favor of exclusive mobile phone use.[53] They also tend to have the highest average wireless bills, at approximately $71 per month, an indication of the intensity of their mobile use.[54]

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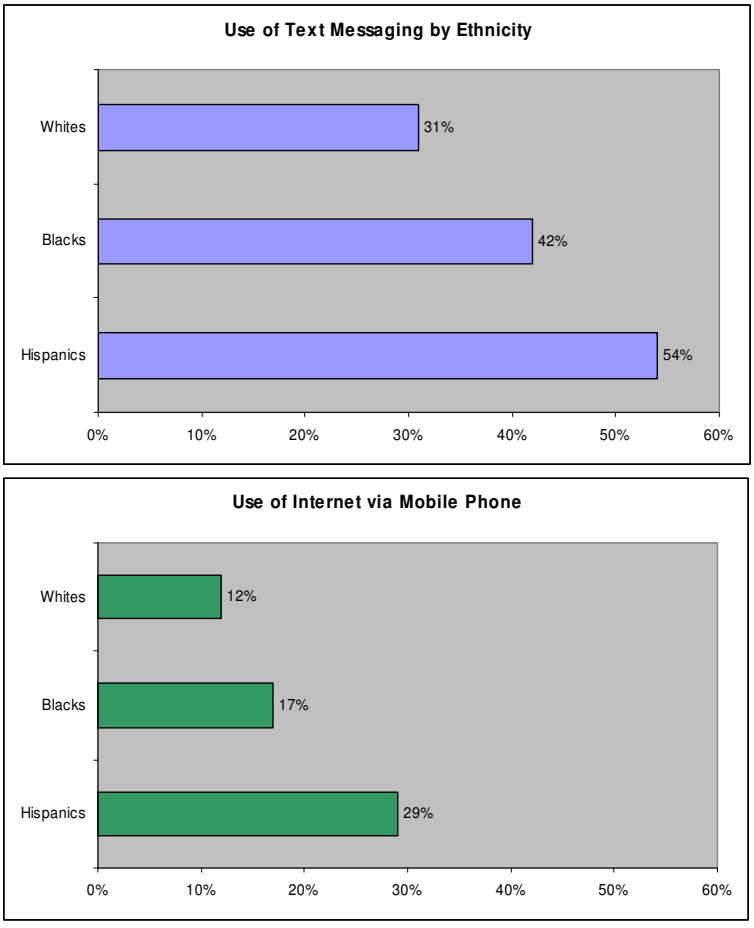
[49] CTIA, retrieved August 7, 2006, from http://www.ctia.org/.
[50] R. Rice et al., "Comparing internet and mobile phone usage: digital divides of usage, adoption and dropouts," *Telecommunications Policy* 27.8-9: 607, September-October 2003.
[51] Mintel Reports, "Mobile Phones – US – May 2005: The Consumer," based on research conducted by Mintel/Simmons NCS in Fall 2004.
[52] L. Rainie et al., 2006, 7. A study by radio researcher Arbitron found similar results. See J. Mandese, "Arbitron: Younger People Cut the Cord, Become Cell Phone-Only Users," *MediaDailyNews,* June 24, 2005; retrieved August 7, 2006, from http://publications.mediapost.com/index.cfm?fuseaction=Articles.showArticle&art_aid=31499.
[53] E. Macias et al., "Trends and Impact of Broadband in the Latino Community," Tomás Rivera Policy Institute, 2005, 8.
[54] Mintel, 2005.

These variations in usage are significant because of their potential implications for mobile financial services use among the underbanked. "Cell-only" users tend to use their mobile phones for a greater range of services, including text messaging and internet applications—two key platforms for MFS. Indeed, 61% of cell-only users employ text-messaging, compared to 31% of cell users with land lines; cell-only users are also far more likely to use their mobile phones to access websites and send email.[55] Minority groups and younger users appear to share these preferences. One analyst claims that "Latinos and African Americans … adopt mobile data services at four times the average rate."[56] The Pew study provides a more conservative estimate but confirms the larger trend:



Source: Pew Internet and American Life Project, 2006

The same is true for use of mobile-based games, pictures, and music—features that do not directly relate to the provision of MFS but that suggest both the importance these users place on their mobile phones and users' growing comfort with diverse forms of mobile technology.

[55] L. Rainie et al., 2006, 8.
[56] T. Ward, "On 'phire': New m-commerce service offers parternships with prepaid card providers and banks," *Intele-CardNEWS*, July 2006, 14.

Sizing the Underbanked MFS Market

Since there is no definitive research on current mobile phone use among the underbanked, estimates of market size for this group must be limited to rough estimates. Further, because the underbanked segment is so diverse, ranging from new immigrants to senior citizens, proxies such as income level and ethnicity are at best imprecise. However, back-of-the-envelope calculations suggest a large potential market of at least 15 million financially underserved mobile users. Notably, this figure does not take into account the probable increase in mobile use among the underbanked in the coming years, as carriers increasingly market to minority, immigrant, and low-income groups.[57]

As stated previously, as many as 40 million American households are underbanked. At the same time, a 2004 Mintel report shows that 65% of Americans own mobile phones.[58] Because of the strong relationship that still exists between mobile phone ownership and income, it does not automatically follow that 65% of the underbanked are mobile phone users. A more cautious estimate rests on Mintel's finding that 44% of Americans with a household income of under $25,000 have cell phones. Assuming, quite conservatively, that only 40% of underbanked households include at least one mobile phone user, the existing market for underbanked MFS would exceed 17.5 million people.[59]

Hispanics, a demographic group actively courted by mobile operators,[60] represent a key sub-segment of the underbanked mobile market. While Mintel reports that Hispanics currently have the lowest rate of usage among all ethnic groups surveyed, many industry observers consider the Hispanic market to be the most promising growth segment in the mobile market. The same trends are visible in the financial services world: Hispanics are also far more likely than the general population to be underbanked but are also considered a key source of new account growth.[61] Since the barriers to ownership of mobile phones and bank accounts may often coincide (such as income and immigration status), we conservatively estimate that 40% of Hispanics over the age of 18 without bank accounts have mobile phones—equivalent to approximately 3.7 million consumers. Notably, this purely "unbanked" population excludes the millions of Hispanics that have some kind of banking relationship but continue to use alternative financial services, such as check cashers and money-transfer operators. They, too, could derive significant value from MFS offerings targeted to the underbanked. As a result, Hispanics likely constitute at least one-third of the potential MFS underbanked market.

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[57] Market research firm CIBC notes that "at 63% saturation, the most profitable wireless customer segments have reached saturation." To reach 70% to 80% penetration, carriers must "develop new distribution channels to reach prepaid and high-risk subscribers, with less favorable economics." See the CIBC document "Raising Wireless Subscriber Forecast," *CIBC World Markets*, May 15, 2005, 5.
[58] Mintel, 2005.
[59] The use of this statistic may be too cautious for two reasons: One, the average income of underbanked households is $27,000, meaning that a significant part of the underbanked population earns more than $25,000. Second, the low rate of mobile penetration among low-income households may reflect the overrepresentation of older Americans, who are both more likely to live on fixed incomes and significantly less likely to use mobile technology.
[60] S. Nowlin, "Reaching out for Hispanics," *San Antonio News-Express*, July 12, 2006, IE.
[61] Pew/Kaiser, 2002, 86-87.

The MFS Needs of the Underbanked

As banks have learned in recent years, reaching out to underbanked customers requires more than targeted advertising campaigns. Rather, MFS providers, like all financial services companies, will have to adjust their mbanking and mpayments offerings to meet the needs of customers without strong banking relationships.

By definition, mbanking services that link to existing bank accounts offer little value to consumers who cannot or choose not to use banks for their financial service needs.[62] However, several scenarios might make mbanking attractive to underbanked customers. One possible application could be for starter or second-chance checking accounts specifically targeted to the underserved. Studies have shown that as many as half of Americans without bank accounts were previously banked; a key reason for closures appears to be unanticipated fees and penalties, which may prohibitively increase the cost of account ownership.[63] By providing users with real-time account information, mbanking services could help new clients manage their accounts and avoid the penalty fees that may discourage them from maintaining their banking relationships. Mbanking platforms may also help banks introduce and administer higher-value products, such as loans and more sophisticated savings and investment instruments, among customers currently holding only transaction accounts.

Mobile payments services may also help meet the needs of financially underserved consumers. From an underbanked perspective, the most useful mpayments services will go beyond small-value purchases; rather, they will integrate or replace a broad range of alternative financial services transactions. To appeal to the underbanked, products must allow users to load funds through mechanisms outside of the traditional banking system. Mpayment platforms linked solely to existing credit cards, for example, will effectively exclude many potential users. One study finds, for example, that only 54% of African Americans and 51% of Latinos have credit cards, compared to 77% of whites.[64] Of the millions of Americans without bank accounts, only one-fifth hold credit cards.[65] Thus, at least initially, prepaid and pay-now modalities appear best-suited to the needs of the underbanked.

In many ways, preloaded mobile payments solutions closely resemble prepaid cards. Indeed, they may provide similar benefits to users: better security than cash, reduced risk of overdraft or penalty fees, convenient loading of value, and, in the case of the most advanced cards, opportunities to save, transfer funds among users, and build credit history.[66] Indeed, the line between prepaid cards and mpayments could prove hazy, as many prepaid companies begin to contact customers through text messaging, while at the same time many mpayments platforms, such as Obopay, seek to overcome the hurdle of POS accessibility through the issuance of branded prepaid cards. One of the most natural applications of MFS technology, then, may be

[62] It is important to note that while mbanking may help bricks-and-mortar banks better attract and retain previously underserved customers, more banking features still must be added for mbanking to resolve many banking barriers, i.e., graphically inaccessible branches and ATMs, inconvenient hours, English-only tellers, identification requirements, and the use of ChexSystems and credit histories to screen customers.
[63] Seidman et al., 2005, 10-11.
[64] Pew/Kaiser. 2002, 87.
[65] G. Driskell, "Beyond Banks." *Intele-Card News,* January 1, 2006.
[66] See K. Jacob et al., "Stored Value Cards: Challenges and Opportunities for Reaching Emerging Markets," The Center for Financial Services Innovation, April 2005.

to build on existing prepaid infrastructure, leveraging mobile technology to provide greater accessibility and functionality to prepaid products currently marketed to the underbanked.

Building the Right Product Mix

Successful MFS platforms for the underbanked market would build on, improve, and in some cases replace the financial services that customers already use, such as check cashing, money transfers, and money orders. The best solutions will go a step further to enable the kinds of transactions that even alternative providers may not provide, such as savings opportunities and access to moderately priced credit. As discussed, a key requirement for all MFS in the underbanked segment is that users be able to closely track their transaction activity and account information at relatively little cost. The following table outlines potential MFS offerings for the U.S. market, followed by a discussion of key services for the underbanked—most of which are not broadly offered in the domestic market. Later, in the "Challenges" section, we discuss the principal barriers to providing many of the services described below.

Potential MFS Product Offerings

PRODUCTS AND SERVICES	OFFERED INTERNATIONALLY ?	OFFERED IN US?	TECHNOLOGY CURRENTLY USED	PROVIDES VALUE TO UNDERBANKED?	NOTES
1. Payments and Purchases					
Merchant pay (POS)	Yes Yes	Yes (piloting) Yes	NFC SMS	Yes	
Bill pay (utilities, cell phone)	Yes	No	SMS	Yes	
Top up/Buy airtime	Yes	No	SMS	Yes	
Stock trading	Yes	No	SMS	Maybe	
Income-tax payment	Yes	No	SMS	Yes	
Insurance purchase	Yes	No	SMS	Yes	
Direct deposit	Yes	No	SMS	Yes	Available In South Africa
2. Transfers					
Person to person (domestic)	Yes	Yes	SMS	Yes	
Person to person (international)	Yes	No	SMS	Yes	
Account transfers (to/from bank account)	Yes	No	SMS	Maybe	
3. Savings Products					
Transfer to savings (internal savings feature)	No	No		Yes	Most effective if FDIC insured
Transfer between savings features (IRA, HAS)	No	No		Yes	
4. Information Retrieval					
MFS balance and transaction info	Yes	Yes	SMS	Yes	
External account information	Yes	Yes (piloting)	SMS	Maybe	
New product information/ targeted marketing	No	No		Maybe	If provided on an opt-in basis
Coupons/ customer loyalty	Yes	Yes	SMS	Maybe	If provided on an opt-in basis
5. Other					
Cash advance/ Short-term loan	No	No		Yes	Depends on terms/cost

Note: For most of the products described above, the value of the product to underbanked users will depend on the source of funds. Transactions funded exclusively by credit cards or existing bank accounts will appeal to fewer underbanked users.

Merchant Pay: The utility of MFS at point of sale for the underbanked market will hinge on participation by the retail and service providers the underbanked use most. Data on the spending patterns of financially underserved consumers provide insight into which merchant adopters would add the most value for the underbanked. A recent study by Ecount found that the most popular spending locations for prepaid users without bank accounts were grocery stores (11.03% of gross dollars spent), restaurants (10.61%), and gas stations (6.64%).[67] Another study suggests that underbanked consumers are among the heaviest users of convenience stores.[68]

Discount retailers also constitute a key merchant category for this group. In March 2006, Scarborough Research found that 50% of Americans without bank accounts had shopped at Wal-Mart stores in the previous 30 days.[69] Indeed, large and chain retailers, such as discount and convenience stores, grocery stores, and gas stations seem best positioned to make the kind of investments necessary to receive mobile payments—because of both their financial resources and the particular value they receive from speeding and simplifying transactions.[70] If these types of merchants prove to be the earliest adopters of mpayments technology, the underbanked will stand to benefit perhaps even more than other customer groups.

Bill Pay: Consumers without checking accounts generally depend on walk-in services such as check cashers, retailers, and kiosks to pay their bills, incurring fees as high as $3 for regular payments and $7 for rush payments. Indeed, walk-in bill payments are expected to reach more than $80 billion in volume by 2009, according to Mercator Advisory Group.[71] Prepaid card companies have already begun to allow customers to pay bills that can be funded using direct debit, usually for a fee of between $.50 and $3.00.[72] A significant market opportunity may exist for mobile payments of this kind as well. Through partnerships with major utility companies, beginning perhaps with mobile operators themselves, MFS providers could provide competitively priced remote bill payment services structured similarly to P2P transfers. An alternative approach would be to establish interoperability with bill pay kiosks through either SMS or NFC technology.

Remittances: Remittances represent one of the most significant transactions conducted by underbanked immigrants in their everyday lives, both in terms of financial value and personal importance. In 2004, workers in the United States sent $34 billion to Latin America and the

[67] "Consumer Spending Trends of Banked and Unbanked Cardholders Released," *Business Wire,* July 19, 2006.
[68] K. Jacob, "Retailers as Financial Services Providers: The Potential and Pitfalls of This Burgeoning Distribution Channel," The Center for Financial Services Innovation, May 2005, 13.
[69] Scarbourough Research, March 2006; http://www.sourcemediaconferences.com/conferences/CFSI06/pdf/Jane%20Thompson.ppt.pdf.
[70] ExxonMobil, among other gas retailers, has already demonstrated this with the success of its Speedpass contactless payment system.
[71] "Walk-in Bill Payments to Total $80 Billion in 2009," *Kiosk Marketplace,* July 28, 2006.
[72] K. Jacob, "Stored Value Cards: A Scan of Current Trends and Future Opportunities," The Center for Financial Services Innovation, July 2004, 14.

Caribbean, and approximately $6 billion each to India and the Philippines.[73] A 2002 study by the Pew Hispanic Center and the Multilateral Investment Fund found that as many as 43% of Latino remitters in the United States lack any kind of bank account; a much greater number may have formal banking relationships but choose to employ non-bank money transfer services.[74] Though many MFS platforms advertise P2P transfers, few if any in the United States enable cross-border payments that could replace existing remittance services. At least one provider, M-Via, plans to offer this service by partnering with banks abroad to issue mobile-linked debit cards that would be used by remittance recipients to withdraw funds from foreign ATMs. While the fees charged for international money transfers have decreased substantially in the past few years,[75] remittances remain a relatively high-margin business and a key point of entry to immigrant markets—and therefore a potential mobile financial service well worth considering.

Person-to-Person (P2P): Though international remittances appear to be the most compelling, if least prevalent, form of person-to-person payments for the underbanked, there may still be a demand in this market for domestic P2P. Many MFS providers appear to view P2P as an ideal introductory service, in part because of its "viral" nature; existing users have a personal incentive to encourage friends and family to adopt the MFS product they themselves use. Providers like TextPayMe and PayPal market P2P payments as a convenience tool to enable friends to split restaurant checks or settle small debts. Among the underbanked, the same service could also be used to pay providers of cash-only services such as child care, or to distribute money among family members in different cities or states. At a recent industry conference, a representative of a major national bank indicated that 37% of the remittances channeled through its branches were sent to destinations within the United States. Clearly, there is some need for secure methods to send funds domestically among people who cannot write personal checks or deposit to shared accounts. Mobile transfers of funds may provide a solution.

Prepaid Top-up and Tie-ins: Though the United States mobile industry has been characterized by the dominance of post-billed service, the prepaid wireless market is growing quickly. Atlantic-ACM recently estimated that the total number of prepaid users will more than double from 24.2 million in 2005 to 55.5 million in 2010.[76] Because prepaid mobile services are particularly popular among immigrants, lower-income consumers and those with poor or no credit, financial services linked to prepaid wireless represent a natural point of departure for MFS targeted at the underbanked.[77]

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[73] A. Paulsen et al., "Financial Access for Immigrants: Lessons from Diverse Perspectives," Federal Reserve Bank of Chicago, 2006, 12. Also "Wells Fargo First Major U.S. Bank to Offer Consumer Remittance Service to the Philippines," November 5, 2004; retrieved June 14, 2006, from https://www.wellsfargo.com/wf/press/20041105_Filipinoremittance. "Wells Fargo and ICICI Bank Launch Overseas Remittance Service Between United States and India," December 1, 2004; retrieved June 14, 2006, from https://www.wellsfargo.com/wf/press/20041201_Indiaremittance.

[74] R. Suro et al., 2002, 7.

[75] See M. Orozco, "The Remittance Marketplace: Prices, Policy, and Financial Institutions," Pew Hispanic Center, June 7, 2004.

[76] F. Smith et al. "High Tech and Targeted," *Intele-Card News*, March 1, 2006.

[77] K. Hill, "Wireless Data Slowly Extending to Prepaid," *RCR Wireless News*, February 13, 2006, 1. Latinos, notably, are six times more likely to use prepaid cards than the general population. See F. Smith et al., 2006.

Internationally, mpayments leaders like *paybox* have found wireless top-up and transfer to be a key entry product for emerging MFS markets. The service requires little additional operator infrastructure, and users who learn to pass airtime between mobile phones—either purchased or received as a gift—get a relatively low-stakes introduction to mobile payments. A second possibility, common internationally, is to treat prepaid minutes as currency for non-phone payments. Carriers can deduct the funds for small charges from a users' prepaid balance, thereby using existing loading mechanisms to offer new services.

Short-term Credit: The magnitude of the $6 billion U.S. payday lending industry is just one indication of the strong demand for short-term credit among consumers without easy access to more reasonably priced loan instruments, such as credit cards or bank lines of credit.[78] In the prepaid-cards space, some companies have begun to offer short-term lending components applied to the balance of the card; at least one payment technology company reduces its risk exposure from these loans through automatic payroll deduction.[79] MFS platforms could add value for credit-underserved customers by offering short-term credit instruments that could be applied for and disbursed via mobile phone. Like prepaid companies, MFS providers would have access to considerable data on their current users' financial behavior, information that would help them better price loans to match each customer's risk profile.

Savings: Consumers without solid banking relationships often lack secure savings instruments. MFS providers could help resolve this problem for their customers by offering savings features. Under such an arrangement, users would have the option to move funds between their active spending "account" and their mobile savings, which would ideally be both FDIC-insured and interest-bearing. Underbanked consumers would gain the opportunity to build assets using their existing financial services platform, with the convenience and psychological reward of easily accessible account information. Providers would derive benefit from the arguably more stable float comprised of customer savings. Ultimately, mobile savings accounts could enable credit-building secured loans and other opportunities for underbanked customers to move into the financial mainstream.

Building Load Networks

For underbanked users of mobile financial services, the ability to easily load money to their phones may prove as important as the ability to spend and transfer funds. Customers without bank accounts or credit cards—the most common source of funds for existing MFS platforms—will require alternative load mechanisms. Options might include direct payroll deposit, designated kiosks or "reverse ATMs" that accept cash, point-of-sale loads through partnerships with retailers, or solutions that "ride on the rails" of existing financial infrastructure, such as prepaid load networks.

Some MFS providers have already started thinking along these lines. Though the service is not currently offered, Obopay envisions a strategic partnership with a payroll card company that would enable customers to receive their salaries directly deposited to their mobile accounts. Retailers like convenience stores and discount chains, already beginning to offer transactional

[78] Center for Responsible Lending, 2006.
[79] E-Duction, FAQs, retrieved August 7, 2006, from http://www.e-duction.com/html/11401.html.

financial services, could provide a particularly valuable link to MFS for this segment, not only as recipients of payments but also as load and unload locations. Because the underbanked already use these kinds of retailers extensively, they represent a promising point of customer service for MFS. The prepaid card load networks already present in check-cashing outlets may represent another viable load/unload option. Finally, mobile operators may elect to offer MFS services at their many retail locations.

Clearly, collaborations with financial service companies and retailers bring with them revenue-sharing obligations that may further narrow the slim margins enjoyed by MFS providers. However, the accessibility afforded by such partnerships may allow providers to make up in volume what they lose in margin. The follow table details a number of the value-loading mechanisms that could be employed by MFS providers in the United States. For most of the entries, the source of funds also could also serve as an unload point where mobile currency could be reconverted to cash; the ability to “cash out” is key for any customer who spends money in places such as neighborhood businesses that are unlikely to accept mobile forms of payment in the foreseeable future.

Methods for Loading Value to MFS Platforms

SOURCE OF FUNDS	OFFERED INTERNATIONALLY ?	OFFERED IN US?	TECHNOLOGY CURRENTLY USED	PROVIDES VALUE TO UNDERBANKED?	NOTES
1. Load from personal funds (cash)					
Load at wireless network store	Yes	No	SMS	Yes	
Load at retailer	Yes	No	SMS	Yes	
Load at check casher	No	No		Yes	
Load by money order/certified check	?	Yes		Yes	
Load by kiosk	?	No		Yes	
2. Load from personal funds (account/credit)					
Load by personal check	?	No		Maybe	Not viable for the unbanked
Load by account transfer	Yes	Yes	SMS	Maybe	Not viable for the unbanked
Load by ATM	?	No		Maybe	Not viable for the unbanked
Load by credit card	Yes	Yes	SMS	Maybe	
3. Load from third-party funds					
Payroll direct deposit	Yes	No	SMS	Yes	
Government benefits	Yes	No	SMS	Yes	
Tax refunds	?	No		Yes	

Leveraging Multi-Sector Partnerships

The development of viable MFS platforms in the United States requires extensive, ongoing collaboration among many parties: mobile operators, banks, and intermediaries. The additional strategic partnerships discussed below, while by no means essential for the provision of MFS, may help companies market their products more effectively to underbanked customers and better retain them by providing higher-quality services.

Government: For many low-income consumers, government payments such as public benefits and tax refunds represent an important source of income. They have also been a driver of innovation in the financial services industry. The discovery by federal researchers in 2002 that

many recipients of welfare payments used check-cashing services to cash government checks contributed to the emergence of prepaid card industry.[80] Much attention has also been paid to the use of Earned Income Tax Credit (EITC) refunds as an asset-building opportunity for the underbanked.[81]

MFS providers could add value for underbanked consumers by negotiating the full or partial deposit of various forms of government payment to users' mobile accounts, perhaps to an integrated, interest-bearing savings product. If structured correctly, such an arrangement could have many advantages. It could allow government agencies to increase the utility of their payments by increasing functionality and savings as well as reducing dependence on high-cost intermediaries. It could allow MFS providers to increase their float and transaction-based fees, and it could give customers more convenient and secure access to funds.

Community organizations: Because MFS technology involves strong network effects, providers seeking to reach the underbanked will benefit from marketing strategies that leverage existing social networks. One approach is to partner with community organizations, such as social service agencies and ethnic associations that directly engage target customers. This may take the form of event sponsorship, co-branded products, or other forms of bilateral endorsement. According to a company representative, mobile payments provider m-Via is already pursuing partnerships with Latino organizations in California in search of collaboration opportunities through co-marketed services. PayPal has taken a philanthropic approach, allowing users to send donations to selected charities through mobile transfers.[82] Presumably the move rests in part on the assumption that loyal donors will be converted into loyal PayPal customers. The past experiences of institutions like KeyBank suggest that such collaborations may be particularly effective for promoting financial services among previously underserved groups,[83] and the same may hold true for underbanked mobile users.

Challenges in the Underbanked Market

In addition to the industry-wide barriers addressed earlier, there are specific challenges related to providing MFS to the underbanked market.

Security and Privacy

For MFS technologies to gain traction in the marketplace, providers will have to guarantee all users a level of security and privacy comparable, if not superior to, competing financial services. For the underbanked, security issues are particularly salient. The more future MFS customers depend on their mobile phones for the most basic transactions, the more they stand to lose from external threats or unreliable service. A number of media reports have provoked questions

[80] See K. Jacob et al., April 2005.
[81] For more on the relationship between EITC and additional financial services, see A. Brown, "Expanding Financial Services to Underbanked Consumers: How Tax Preparation Partnerships Can Help Bridge the Gap," The Center for Financial Services Innovation, 2005.
[82] "PayPal Launches Mobile Payments," *Electronic Payments International*, April 30, 2006, 11.
[83] B. Murphy et al., "The Customer Experience: The Importance of Enterprise-wide Communication," presentation to the First Annual SourceMedia/CFSI Underserved Financial Services Forum, Chicago, June 9, 2006.

about the security of the diverse platforms proposed for MFS, including SMS and NFC.[84] The appearance of the first Java-based mobile phone virus raises similar concerns for proprietary MFS applications that use Java.[85]

MFS providers have responded with solutions ranging from straightforward user controls (PINs and pass codes to authorize payments) to sophisticated data-encryption tools. Beyond direct security threats, a key question for underbanked users will be what happens if their phones are lost or stolen, particularly since replacements may be costly. Always an inconvenience, this problem becomes far more significant for consumers who depend on their phones for financial services as well as for communication. For such contingencies, a prepaid card backup with IVR and/or online functionality may prove doubly useful.

Regulatory Issues

A number of complex regulatory issues surround mobile financial services, at both the state and federal levels. Many regulatory issues facing MFS stem from providers' likely categorization as money services businesses, or MSBs. In a 1999 ruling, the U.S. Secretary of the Treasury determined that all MSBs must comply with all applicable provisions of the Bank Secrecy Act. Business activities that qualify a company as an MSB include check cashing, changing currency, issuing money orders, and issuing, storing, or redeeming stored value in an amount greater than $1,000 per customer per day.[86] The government's definition of stored value—"funds or monetary value represented in digital electronics format (whether or not specially encrypted) and stored or capable of storage on electronic media in such as way as to be retrievable and transferable electronically"—would seem to encompass funds loaded to mobile phones.[87] According to its website, TextPayMe owner MNESVC, Inc., has registered as an MSB in more than 20 states, as have other emerging MFS providers. Other companies report that they have not yet registered as MSBs but comply fully with MSB laws.

At the state level, MSBs are subject to laws administered by state banking departments or departments of financial institutions. Most states have bonding and insurance requirements for MSBs, though enforcement and examination procedures vary, as does the rigor of the laws themselves. These discrepancies may prove challenging for MFS companies that seek to operate across many states (an essential characteristic for P2P providers). At the national level, MSBs must comply with the Bank Secrecy and USA Patriot acts. The BSA, created to help detect and prevent money laundering, requires financial institutions, including MSBs, to maintain paper trails of customers' transactions of over $1,000 with any one person on the same day. The USA Patriot Act requires greater diligence on the part of financial institutions in collecting and verifying personal information.[88]

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[84] E. Obiodu, "HSBC to Pioneer New Mobile Banking Service," *World Markets Analysis,* April 11, 2006. See also S. Schwartz, "NFC: The Key to Intuitive Communication," *Billing World and OSS Today,* June 2006.
[85] "Banks Risk Hack Attacks in Deploying Mobile-Phone ATMS," *IT Security*, July 18, 2005.
[86] "Financial Crimes Enforcement Network. Am I an MSB?"; retrieved August 7, 2006, from http://www.msb.gov/msb/index.html.
[87] See section "vv" at http://www.msb.gov/pdf/31CFR10311.pdf.
[88] For more on regulatory issues related to MSBs, see Jacob, "Retailers as Financial Services Providers: The Potential and Pitfalls of This Burgeoning Distribution Channel," The Center for Financial Services Innovation, 2005.

Other regulatory issues may be raised by specific product offerings and billing procedures. A Tower Group report on mobile commerce notes that should mobile operators turn to postpaid billing for payments unrelated to "telecommunications items," they may face legal challenges in certain states.[89] MFS platforms that offer payroll card functions may face additional requirements; for example, many states' employment laws mandate that employees must be able to access their funds without incurring a "discount" or additional cost.[90] Payroll cards are also subject to Regulation E under new rules that take effect in 2007.[91] Meanwhile, the FDIC has yet to rule on whether deposit insurance requirements will extend to prepaid products; the ruling, when it comes, could have important implications for MFS providers as well.[92] Finally, as indicated above, international remittance products, while an attractive entry product for many underbanked customers, will likely require particular vigilance with regard to anti-money–laundering and anti-terrorism compliance.

Pricing

Pricing strategy represents a key consideration for all providers seeking to serve the underbanked.[93] For this segment, prices must be not only competitive with existing alternatives but also transparently structured. Indeed the much-discussed practice of client "bailing," that of customers moving between traditional institutions and alternative providers, in part reflects the complex fee structures of mainstream financial services.[94] Many underbanked consumers have discovered, for example, that it is cheaper to use check cashers than incur unexpected penalties and fees from a traditional checking account. Thus, customers with liquidity concerns may choose to pay a premium for services that reduce the risk of surprise costs.

This is a particularly salient issue for MFS, since most existing platforms lend themselves to fee-based revenue models, with revenues split among a number of players. As discussed above, platforms that charge hidden costs or offer complex terms of service may fail to retain customers. MFS providers who view the underbanked segment as a source of long-term customers with the potential to migrate to higher-value products must carefully consider the trade-offs created by fee-based models. Flat monthly membership charges, for example, may provide a more attractive alternative to high-volume consumers who come to depend on their mobile phones for most financial services transactions.

Interestingly, the MFS offerings currently available in the United States are characterized not by high prices but rather by fees so low that they appear unsustainable. In the case of mobile payments products like PayPal Mobile and MobileLime, end users are charged nothing to use basic services; revenues derive from fees or subscriptions charged to participating merchants.

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[89] E. Kountz, "M-Commerce: Financial Institutions and Carriers Define Their Roles in the New M-World," *Insight* (Tower Group), November 2002, 8.
[90] American Payroll Association, "Regulatory Compliance," retrieved August 7, 2006, from http://www.payrollannex.org/paycard/paycardportal.cfm?pageid=6.
[91] "Fed Is Poised to Extend Reg E to Payroll Card Operators," *Cards and Payments*, April 2006, 14.
[92] V. Rostow et al., "Hybrid Health Products Need Regulatory Update," *American Banker*, June 9, 2006, 11.
[93] This section largely applies to mpayments services, since current mbanking offerings are largely limited to text message notifications, which are provided at no cost to account holders. As banks begin to offer customers a wider suite of mbanking services, such as mobile-initiated account transfers, bill payment, and remittances, the considerations described above will become more relevant.
[94] S. Kutner, 2006.

These merchant-driven revenue models seem less viable for providers that offer users a broader range of financial services—particularly the platforms that allow users to truly load and unload value to the phones, rather than simply pay by linked card or account.

The following table summarizes the prices charged by various MFS platforms currently operating in the United States.

Fee Schedule for Current MFS Offerings*

PRODUCT	SUBSCRIPTION/ INITIATION FEE	LOAD FUNDS	UNLOAD FUNDS	PARTICIPATING MERCHANT PAY	GENERAL POS PAYMENT	ATM WITHDRAWAL	P2P TRANSFERS	CONSULT ACCOUNT INFORMATION
KushCash	$0	$0	$0	Not offered	$0	$0	$0 to send; $.50 to receive	$0
MobileLime	$0	Not offered	Not offered	$0	Not offered	Not offered	Not offered	Not offered
Obopay	$0	$0	$.10 for check request	$.10 to send	$0	$0 domestic; $1.75-$2.75 international	$.10 to send; $0 to receive	$0
PayPal	$0	$0	$0 for US users	$0	Not offered	Not offered	$0	Not offered
TextPayMe [during beta phase]	$0	$0	$0	Not offered	Not offered	Not offered	$0	$0

Source: Price information as of August 3, 2006, taken from company websites and phone calls to customer service departments.

**Does not include additional charges that may be levied on users by third parties in the course of a given transaction, such as text message fees charged by mobile carriers or standard ATM usage fees.*

Accessibility

A number of accessibility issues could influence the future acceptance of mobile financial services among the underbanked. Like any other service, MFS platforms will not add significant value for consumers unless they are easy to use.

One consideration, particularly for mpayments solutions, is the relative convenience of MFS in customers' economic environments. As discussed previously, the most successful products will be those that allow underbanked users to seamlessly integrate MFS into their everyday lives—for example, by letting them load and spend mobile funds at local stores. Further, given that consumers will inevitably spend at least some of their cash in places that don't accept mobile payments, they must have a relatively easy way to unload mobile currency into cash, such as through ATMs or cash back at mobile-enabled points of sale. A related usability issue involves the spending and loading limits that MFS providers may impose in an attempt to comply with regulation or reduce their own exposure to risk. For customers depending on their mobile phones for all financial services transactions, low per-day load or transfer limits may prove prohibitive.

Offering MFS to the underbanked market may also present challenges from a product design perspective. Early adopters among the underbanked, inevitably the most active and tech-savvy mobile users, will have few troubles adopting well-designed, user-friendly MFS products. However, as these products penetrate deeper into the underbanked market, several obstacles are likely. Because a large proportion of the underbanked are new immigrants, who may not be fluent in English, MFS targeted toward the underbanked may require multiple language modalities. Customer adoption will also be an issue for users less comfortable with text messaging and other mobile technology features. These challenges will be mitigated to the degree to which MFS products benefit from network effects, such that early adopters, particularly within ethnic and linguistic communities, willingly teach newer users as a way to enhance their own product experience. MFS platforms that provide person-to-person transactions (or other incentives for existing users to attract additional customers) will stand to benefit most from this kind of informal training mechanism.

Conclusion

The industry analysts and company leaders interviewed for this paper agreed that MFS in the United States may finally be taking off, after years of lagging behind other countries. There are many new technologies and product offerings that may speed the adoption of MFS, but also many questions that must be answered—related to technology, inter-industry cooperation, and regulatory constraints. As MFS providers begin to resolve these issues and deliver products to end users, they should look to the underbanked as a promising potential market in light of its size, demand for new forms of financial services, and demonstrated willingness to embrace mobile technology. Unlike customers with multiple payment and banking options, underbanked consumers could transfer most of their transactions to their mobile phones if presented with attractive, secure, and accessible MFS products.

The following recommendations are intended for MFS providers considering entry into the underbanked market.

- Consider linking mbanking services to starter and second-chance accounts targeted to the underbanked.
- Increase the interactivity of mbanking features beyond passive notifications so that clients can more actively access information and manage their accounts.
- Use mbanking platforms as cross-selling opportunities to introduce clients to new services based on their financial profiles, such as high-yield savings products.
- Leverage existing distribution networks (retail, employer-based, government benefit, prepaid, and check cashing) to enable loading of funds from non-bank sources.
- Draw on the most innovative examples from the prepaid industry to incorporate asset- and credit-building features early on.
- Pursue nonprofit and community partnerships to increase distribution and improve customer loyalty.
- Evaluate the feasibility of international remittance services—a key point of entry to immigrant markets.
- Develop more precise size estimates and profiles of the underbanked mobile market and its subsegments.
- Evaluate existing products and design new products in light of the specific needs of each segment of the underbanked market, particularly with regard to source of funds and distribution issues.
- Pursue greater clarity regarding the regulatory limitations that may affect the provision of MFS, particularly with regard to identification issues and cross-border payments.
- Explore MFS solutions that integrate both mbanking and mpayments features, providing a point of access to mainstream financial services for customers interested in forming more solid banking relationships, and creating a viable alternative for those who are not.

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The Center for Financial Services Innovation (CFSI) assists the financial services industry to identify, develop, and implement innovative ways of delivering asset-building opportunities to the underbanked market that are profitable for both company and customer.

CFSI, a nonprofit affiliate of ShoreBank Corporation, was founded in 2004 to encourage the financial services industry's efforts to serve underbanked consumers. The Center provides funding for innovative solutions, a meeting place for interested parties, and resources for testing products and services; and identifies, develops, and distributes authoritative information on how to respond to the needs of the underbanked profitably and responsibly. Banks, credit unions, technology vendors, alternative service providers, consumer advocates, and policy makers all can find support here to forge the new relationships, products, and strategies that will transform industry practice and people's lives. For more on CFSI, visit www.cfsinnovation.com.

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