



Mobile Banking and Mobile Payment Practices of U.S. Financial Institutions: Results from 2014 Survey of FIs in Five Federal Reserve Districts

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The views expressed in this paper are those of the authors and do not necessarily represent those of the Federal Reserve Bank of Boston, Atlanta, Dallas, Richmond, Minneapolis, the Federal Reserve System or NEACH.

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I. Introduction

This report offers insights into the mobile banking practices and mobile payment plans of banks and credit unions in five Federal Reserve Districts: Atlanta, Boston, Dallas, Minneapolis, and Richmond. The report presents the consolidated findings from a joint survey that was conducted in the third quarter of 2014.

The five Federal Reserve district banks (FR Banks) share a common goal of providing their financial institutions (FIs) with an understanding of the current landscape for mobile banking and payments, both within their districts and across several regions of the United States (U.S.). Additionally, FR Banks want to inform their own perspectives about the status of mobile banking and payments within their districts.

The original survey instrument was designed in 2008 by the Federal Reserve Bank of Boston (FRBB) and the New England ACH Association (NEACH) and has been updated several times in the interim to reflect changes in the mobile landscape. The information sought in this 2014 survey included:

- Number of banks and credit unions offering mobile banking and payment services.
- Types of mobile services offered or planned.
- Mobile technology platforms supported.
- Business drivers and benefits associated with mobile services.
- Consumer and business adoption of mobile banking services.
- Risks and barriers to providing mobile services.
- Future plans of banks and credit unions related to mobile payment services.

The survey captures a point-in-time snapshot of mobile banking and payments at FIs in each district. With the exception of the First District (Boston), there is no historical or trend information available. Therefore, information from previous FRBB-NEACH surveys is used in this report to inform the analysis where relevant. Although this historical information may not reflect the situation in other districts, it does offer insights into changes that have taken place between 2013¹ and the time of this survey in mid-2014.

The information presented, while representing only five of the 12 FR Banks, is pertinent to most districts for several reasons. First, this is one of the largest surveys about mobile banking and payment services at FIs that has been done in the U.S. It is also noteworthy because most of the data come from banks and

¹ The FRBB and NEACH conducted a similar survey of banks and credit unions in New England at the end of 2012 and January 2013, respectively.

credit unions with less than \$500 million in assets² – a group for which information is not readily available. Additionally, survey respondents are geographically dispersed at institutions in 25 states and Washington, DC, which provides a broad picture of mobile banking services across the U.S. (Refer to “Section IV District Overview” for a more detailed breakdown.)

Four hundred and thirty-three banks and 192 credit unions participated in the survey – a consolidated response rate of 11 percent. While the number of institutions represents slightly less than seven percent of all banks and three percent of all credit unions nationally, the survey showed that there is an active environment for mobile banking, and prospectively for mobile payment services, at institutions of all types and sizes across the U.S. Not all institutions surveyed were at the same level of implementation, but 94 percent of respondent FIs are already actively engaged in or planning to offer mobile services.

II. Survey Background and Methodology

Background

The FRBB and NEACH have been conducting joint surveys of FIs in New England for several years to assess the state of mobile banking and payment services offered by those institutions. The two organizations published their first major survey in 2008; followed up with a mini-survey in early 2010 that focused on mobile services, customer adoption, and market segments; and conducted a second major survey in 2013 that pulled together topics from both prior surveys. The 2014 survey covered the same general areas as the 2013 survey, but as in previous years was updated to include a few new questions related to key areas of market change.

The FRBB invited other FR Banks to distribute the 2014 survey to banks and credit unions in their districts in order to extend its impact and value nationally. Four FR Banks – Atlanta, Dallas, Minneapolis, and Richmond – agreed to participate and assisted in reviewing and commenting on the final version prior to distribution.

Methodology

The survey duration ran from July 17, 2014 through Aug. 15, 2014. Each participating FR Bank distributed the survey via email to CEOs and other executives at banks and credit unions in its district. Most financial institutions completed the surveys online – and Fed staff manually input data

² 70 percent of FIs surveyed had less than \$500 million in assets.

from the few surveys received via mail or fax. Several Regional Payments Associations (RPAs) – Eastpay, the Mid-Atlantic Payments Association, NEACH, PaymentsFirst³, the Southern Financial Exchange (SFE), and the Southwest ACH Association (SWACHA) – facilitated survey distribution and follow-up by drawing on their memberships to augment the FR Banks’ efforts. While FR Banks have strong connections to banks in their districts, they relied on the RPAs to promote the survey to their credit union members, in particular.⁴

The FR Banks had separate domains within the survey database and access only to their own data⁵. Three FR Banks – Atlanta, Boston, and Dallas – produced individual reports on their districts’ findings. The Atlanta report⁶ presents results for both banks and credit unions, as does the Boston report, which also features comparisons to its earlier 2013 survey. The Dallas report⁷ features findings from this survey and excerpts relating to mobile banking from SWACHA’s “2013 Consumer Insights Survey.”

Other Factors

This report presents the consolidated findings across all five FR Bank districts. Information for individual districts is presented and discussed, as relevant, in the context of the consolidated data. Consolidated data percentages represent an average of the total responses of all five districts to each question, while district data represents the actual percentage of respondent banks and credit unions within that district. Minneapolis and Richmond represent small respondent pools, and based on answers to Question 11, respondents in Minneapolis are newer to mobile banking. Both factors, particularly the latter, impact the averages to some extent and are highlighted when relevant.

If FIs answered “no plans to offer” mobile banking services in Question 11, they were instructed not to complete the remainder of the survey, reducing the “baseline” number of respondents for other questions from 625 to 586. Fewer institutions have made decisions about mobile payment services (compared to mobile banking), such that the “baseline” respondent pool for mobile payments is 355.

³ PaymentsFirst comprises four former RPAs: Alabama, Georgia, South Carolina, and Tennessee ACH Associations.

⁴ The high participation of credit unions in New England is due to the relationship that NEACH has with credit union organizations. Refer to “Mobile Banking in New England is Mainstream” (2015), the FRBB-NEACH report of survey findings in New England for details <http://www.bostonfed.org/bankinfo/payment-strategies/publications/2015/mobile-payments-and-banking-survey-2014.pdf>.

⁵ With the exception of FRB Boston which had access to all data as the survey administrator.

⁶ David Lott, “2014 Mobile Banking and Payments Survey of Financial Institutions in the Sixth District,” *Federal Reserve Bank of Atlanta*, March 2015. https://www.frbatlanta.org/-/media/Documents/rprf/rprf_pubs/2014-mobile-banking-and-payments-survey-of-financial-institutions-in-the-sixth-district.pdf?la=en.

⁷ “Mobile Banking and Payments Survey of Financial Institutions in the Eleventh District Summary of Results,” *Federal Reserve Bank of Dallas and SWACHA*, April 2015. <http://www.dallasfed.org/assets/documents/banking/firm/2015mobile.pdf>.

All the figures in the report include the actual survey question as well as the number of respondents answering each question. The number of respondents differs from question to question, and responses based on a very small respondent pool may not be indicative of most banks or credit unions in a given region.

The names of the individual FR Banks are used throughout this report to represent the FIs in their district. For example, “Atlanta” refers to all 189 respondent banks and credit unions in that district.

Consumer research data from the Federal Reserve Board of Governors’ “Consumer and Mobile Financial Services”⁸ survey and trend information from earlier FRBB-NEACH surveys are used to provide context for the consolidated findings.

III. Mobile Landscape

The term “mobile banking” as used in this survey is defined as the use of a mobile phone to connect to an FI to access bank/credit account information (e.g., view balances, transfer funds between accounts, pay bills, receive account alerts, locate ATMs, and deposit checks). The term “mobile payments” is defined as the use of a mobile phone to pay for a purchase of goods and services at retail point-of-sale (POS) or food service location, on the internet for goods and services or digital content, or to pay for transit, parking or other transportation services, ticketing, etc. Payment may be initiated via SMS text message, mobile browser, downloadable app, contactless near field communication (NFC)⁹, or quick response (QR) code.¹⁰

With mobile banking becoming a mainstream service, the market has turned to the retail mobile payments sector. After several years of slow acceptance of mobile/digital payments, the last 18 months have shown heightened interest from various industry stakeholders, including card networks, financial institutions, and merchants. There has been a plethora of new products, features, and capabilities launched around mobile and digital payments, and the sector is changing rapidly. Stakeholders are trying to adapt as quickly as the technology developments evolve. Start-ups and incumbents from the financial services

⁸ “Consumers and Mobile Financial Services survey,” *Board of Governors of the Federal Reserve System*, March 2015
<http://www.federalreserve.gov/econresdata/consumers-and-mobile-financial-services-report-201503.pdf>

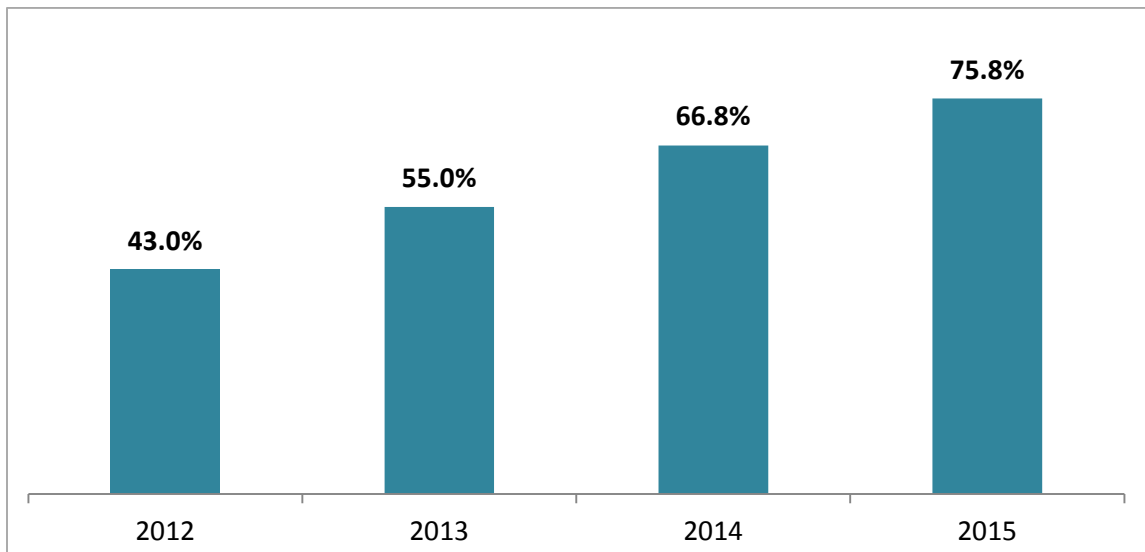
⁹ Near Field Communication (NFC) is a standards-based wireless communication technology that allows data to be exchanged between devices that are a few centimeters apart. NFC-enabled mobile phones incorporate a smart chip (secure element) that stores the payment credentials securely to emulate a physical contactless card. NFC payment transactions between a mobile phone and a POS terminal use the standard ISO/IEC 14443 communication protocol also used by EMV and U.S. contactless credit and debit cards.

¹⁰ Quick Response (QR) Code: A machine-readable two-dimensional barcode that contains information (e.g., payment account data) which can be scanned and decoded quickly.

industry and technology providers are developing new services that are helping to shape consumer preferences. These drivers of change across the expanded mobile ecosystem are highly interconnected.

Both smartphone penetration and mobile operating system market share are key indicators of potential mobile payment adoption. **Figure 1** shows the percentage of the U.S. population over 13 years of age that owns smartphones, which was 66.8 percent in 2014 and 75.8 percent in 2015.¹¹ This percentage has been growing steadily year over year and is forecasted to continue to rise. **Figure 2** shows the U.S. market share of each major mobile operating system – (Google) Android leads with 52 percent, followed by Apple with 42 percent.

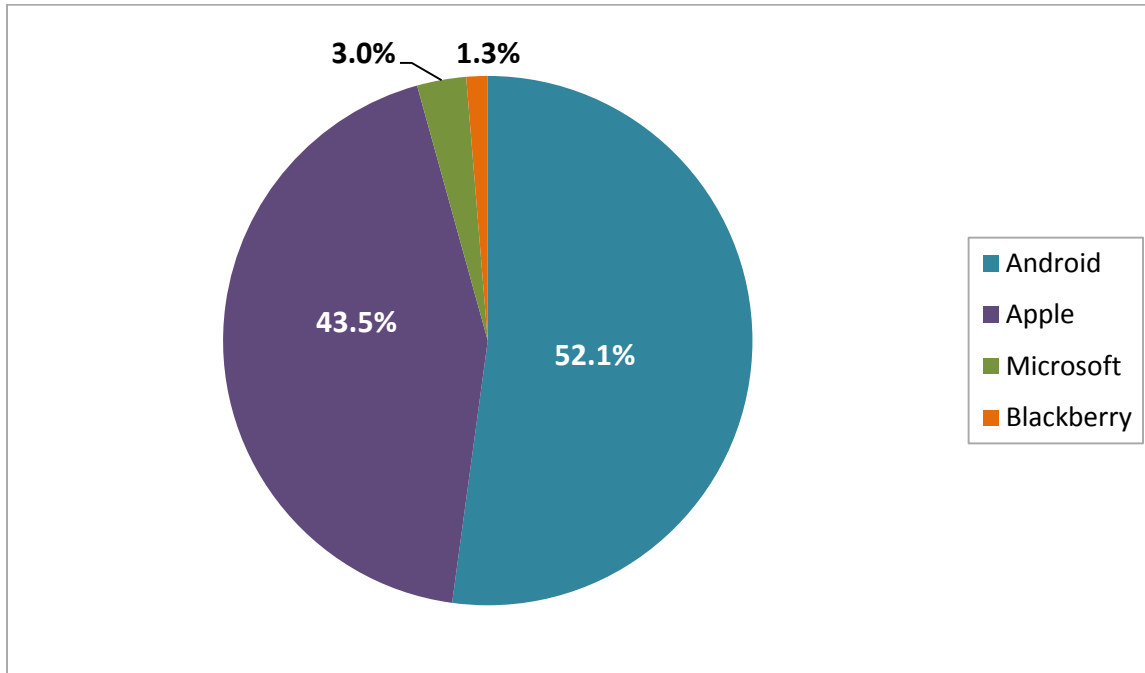
Figure 1: U.S. Smartphone Penetration



Source: comScore MobiLens, 2012-2015

¹¹ "comScore Reports January 2015 U.S. Smartphone Subscriber Market Share," March 4, 2015
<http://www.comscore.com/Insights/Market-Rankings/comScore-Reports-January-2015-US-Smartphone-Subscriber-Market-Share>.

Figure 2: U.S. Smartphone Market Share by Operating System



Source: comScore MobiLens, July 2015

Another key driver of mobile payment adoption is the growth of mobile commerce, which was 12.9 percent of retail e-commerce in 4Q2014, compared to 11.6 percent at the end 2013.¹² Retail e-commerce is growing steadily and was seven percent of total retail sales at the end of 1Q2015, up from 6.6 percent the previous quarter.¹³

Smartphones have enabled consumers to connect to different channels, making it easy for consumers to use mobile devices for payments. Apple Pay has taken mobile payments to another level with added security through biometrics and tokenization. Merchants, issuers, and card networks have found ways to incent more customers with loyalty programs and rewards through the mobile phone. All of these stakeholders want similar results from a mobile payments experience: security, convenience, and ease of use, available to consumers wherever they want to shop, whether at the retail POS, on the internet, or remotely via an app.

Millennials (who grew up with connectivity), mobile interfaces, and digital technology are changing consumer behavior, but new mobile solutions must still offer clear value propositions. Consumers have

¹² "2015 U.S. Digital Future in Focus, comScore, March 26, 2015 <https://www.comscore.com/Insights/Presentations-and-Whitepapers/2015/2015-US-Digital-Future-in-Focus>

¹³ U.S. Census Quarterly Retail E-Commerce Sales 1st Quarter 2015, https://www.census.gov/retail/mrts/www/data/pdf/ec_current.pdf

come to expect incentives and other features that are customized and real-time. They are demonstrating growing comfort with mobile and digital wallets as well as willingness to pay with mobile-based solutions, although merchant acceptance is still low. The introduction of Apple Pay has captured the interest of FIs and other stakeholders, renewed interest in NFC, and spurred interest from Google and Samsung to develop similar NFC-based mobile payment models. A large merchant consortium, MCX, is developing its own QR code-based mobile wallet, CurrentC, which is expected to launch in late 2015.

There is also a heightened focus on security, a core component of the payment evolution, which is influencing consumers' perspectives about how payments should be made. The card network mandated migration to EMV¹⁴ chip technology by October 2015 will add a new layer of security to cards, and also support the platform for NFC contactless mobile payments for merchants and consumers.

At the same time, payment channels are converging – blurring lines between e-commerce, mobile, and physical (POS) retail environments – and making the shopping experience more informative and convenient to consumers. Merchants, however, will have to manage and ensure consistent and secure customer experiences across channels.

Competing mobile technologies and platforms have evolved and now the industry must figure out how they will co-exist and be compatible (e.g., use of a secure element or host card emulation (HCE)¹⁵ with NFC mobile contactless payments, digital payments where payment is made via mobile app and QR code and credentials are stored in the cloud).

There is a risk that competitors, such as non-bank technology service providers, may gradually encroach on banking functions and deliver some traditional services (e.g., merchant services for small businesses, payment services, and even checking accounts (via prepaid debit) directly to consumers and businesses via the mobile phone. These new products could also be lower cost and provide better customer experience. For example, Google, Apple, and Amazon are already leveraging and integrating their traditional products to create new customer value in financial services that goes beyond payments – storing coupons, improving mobile security, opening digital stores, etc. – that have the opportunity to

¹⁴ EMV (Europay, MasterCard, and Visa) is a global specification for credit and debit payment cards based on chip card technology that defines requirements to ensure interoperability between chip-based payment cards and terminals. The primary use for these chip-based cards is to perform payment transactions. The encrypted dynamic data supplied by the chip provides a higher level of protection against counterfeiting than magnetic striped cards. For more information, see <http://www.emvco.com>.

¹⁵ Host Card Emulation (HCE) uses software to mimic or represent a smartcard, replacing the need for a secure element in the mobile phone to store and manage access to payment credentials. HCE enables NFC communications to be routed through the mobile phone's host processor and stores and transmits payment card credentials via the cloud.

deliver highly personalized solutions. The information in this survey highlights what FIs are doing today and planning to do to in the future to create mobile banking and payment strategies to respond to this changing environment.

IV. District Overview

As of September 2014 there were a total of 13,061 financial institutions – 6,585 banks and 6,476 credit unions – in the United States. The surveyed population for the five participating FR Banks is 42 percent of the national total. These five districts encompass 25 states (including a few partial states) and the District of Columbia, providing a good picture of mobile banking and payments at FIs across disparate areas of the U.S. (Figure 3 lists the states included for each participating Fed district.)

Figure 3: States Included in Participating Federal Reserve Districts

Federal Reserve District	States included in Fed District
Atlanta (Sixth District)	Alabama, Florida, Georgia, and portions of Louisiana, Mississippi, and Tennessee
Boston (First District)	Connecticut (excluding Fairfield County), Massachusetts, Maine, New Hampshire, Rhode Island, and Vermont
Dallas (Eleventh District)	Texas, northern Louisiana, and southern New Mexico
Minneapolis (Ninth District)	Minnesota, Montana, North and South Dakota, 26 counties in northwestern Wisconsin and the Upper Peninsula of Michigan
Richmond (Fifth District)	Virginia, Maryland, North Carolina, South Carolina, Washington, DC and most of West Virginia

Figure 4 shows the number of respondent banks and credit unions as a percentage of the total number of banks and credit unions in each District. On a consolidated basis, banks represent 70 percent and credit unions 30 percent of the respondents. There are several reasons for the smaller percentage of credit union respondents. For one, many credit unions are very small institutions and may not have participated in the survey due to resource issues. Further, some credit unions may not offer mobile banking due to the nature of their charters (e.g., municipal teachers’ association; fire fighters’ credit union; or hospital credit union) and opted out of participating. The result is the survey is weighted toward banks, and also toward institutions that offer or plan to offer mobile banking.

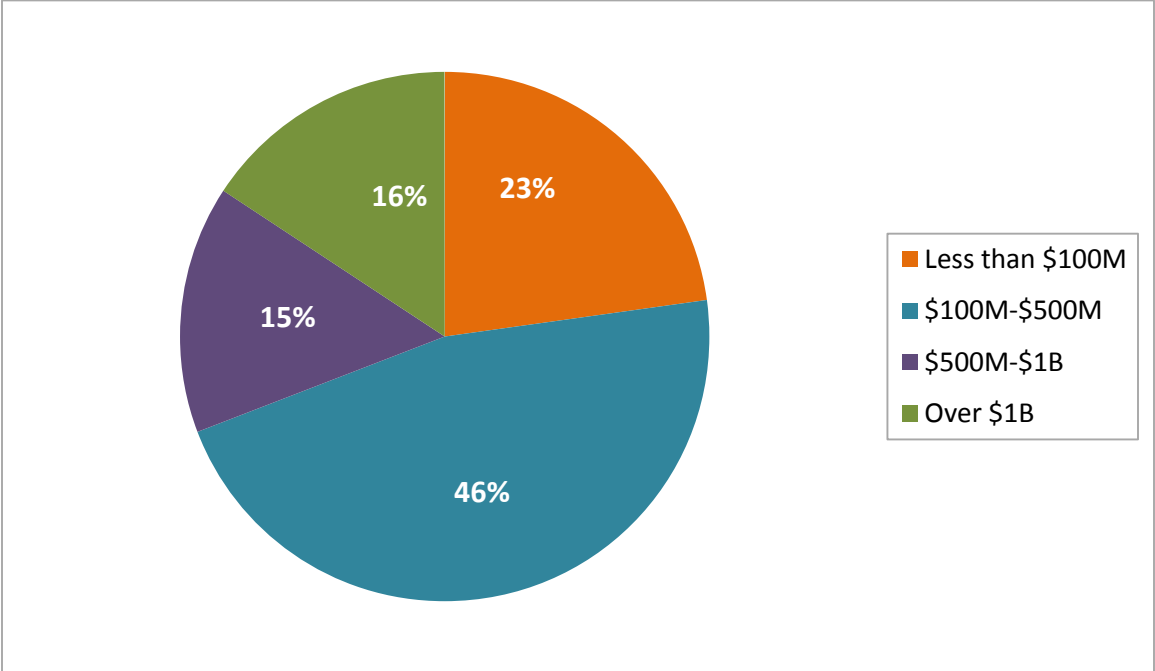
Both Minneapolis and Richmond have respondent pools that are about four times smaller than those of the other three districts – which will be highlighted as relevant to the findings.

Figure 4: Survey respondents by Federal Reserve District

FR Districts	Banks			Credit Unions			Consolidated		
	District Total	Respondents		District Total	Respondents		District Total	Respondents	
		#	%		#	%		#	%
Atlanta	790	141	18%	754	48	6%	1,554	189	12%
Boston	249	109	44%	390	70	18%	639	179	28%
Dallas	587	126	21%	554	45	8%	1,411	171	12%
Minneapolis	645	36	6%	326	9	1%	971	45	5%
Richmond	358	21	6%	530	20	4%	888	41	5%
Total	2,629	433	16%	2,554	192	8%	5,453	625	11%

The fact that 70 percent of the survey respondents have fewer than \$500 million in assets underscores the point that most domestic FIs are small banks and credit unions (**Figure 5**).

Figure 5: Consolidated Survey Respondents by Asset Size (percent of respondents)



Q8. What is your FI's asset size?

Credit union respondents are considerably smaller than respondent banks (**Figure 6**). With the exception of Richmond, the preponderance of credit union respondents are under \$100 million in assets – ranging from 42 percent to 56 percent – but the preponderance of banks is in the next higher tier. Minneapolis respondents were evenly distributed (44 percent) between “under \$100 million” and “\$100 million - \$500 million;” but in other districts, most bank respondents were in the “\$100 million - \$500 million” tier (48 percent to 64 percent of respondents). Overall, more banks than credit unions had assets greater than \$500 million (i.e., “\$500 million - \$1 billion” or “over \$1 billion”).

This survey differs from many others by presenting what smaller banks and credit unions, rather than top tier institutions, are doing.

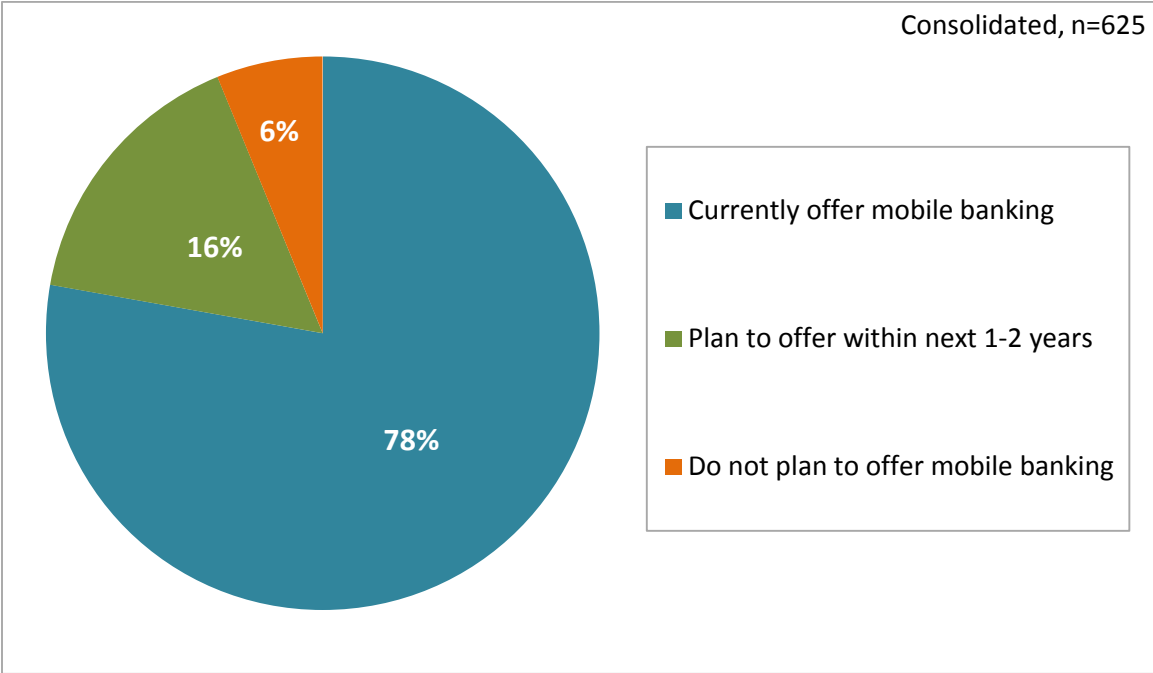
Figure 6: District Survey Respondents by Asset Size (percent of respondents)

FR District	n=	Percentage of Banks				n=	Percentage of Credit Unions			
		Under \$100M	\$100M-\$500M	\$500M-\$1B	Over \$1B		Under \$100M	\$100M-\$500M	\$500M-\$1B	Over \$1B
Atlanta	141	7%	64%	14%	15%	48	42%	31%	13%	15%
Boston	109	7%	51%	19%	23%	70	44%	41%	6%	9%
Dallas	126	14%	48%	17%	21%	45	56%	16%	22%	7%
Minneapolis	36	44%	44%	6%	6%	9	44%	33%	11%	11%
Richmond	21	14%	57%	10%	13%	20	35%	40%	15%	10%

Q8. What is your FI's asset size?

To set a baseline for measuring growth in FI mobile banking, the survey asked respondents when they started offering these services to their customers. Overall, 78 percent of respondent FIs offer mobile banking services: 60 percent reported that they have offered mobile banking for more than one year, and 18 percent reported that they began offering such services within the past year (Figure 7). Sixteen percent plan to offer mobile banking within the next 24 months, and only six percent have no plans to offer it.

Figure 7: Status of FIs Offering Mobile Banking Services (percent of respondents)

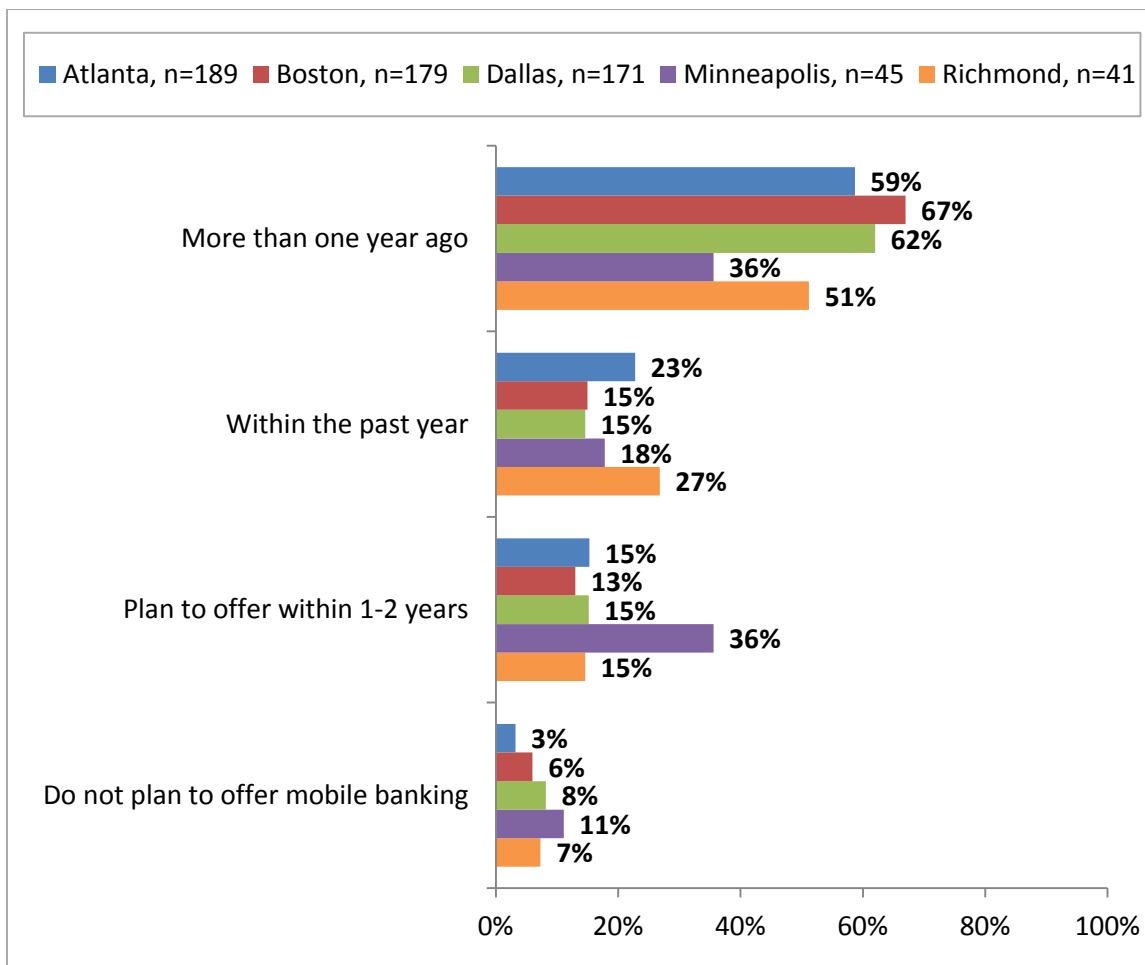


Q11. When did you start offering mobile banking to your customers? (Check ONE)

On a consolidated basis, the point-in-time data is essentially the same for banks and credit unions. Fifty-nine percent of banks and 63 percent of credit unions implemented mobile banking services more than a year ago; and 19 percent of banks and 16 percent of credit unions implemented the service “within the past year.” When totaled, the percentage of respondents offering mobile services is 78 percent of banks and 79 percent of credit unions.

Figure 8 illustrates the status of FIs offering mobile banking services by district. More than half of the FIs in Atlanta and Richmond, and approximately two-thirds of the FIs in Boston and Dallas have been offering mobile banking services for more than a year. As noted earlier, Minneapolis respondents are newer to mobile banking than those in other districts, so a higher percentage (36 percent) of these institutions are planning to implement mobile banking within the next one to two years. Only 15 percent of FIs in the other four districts are in planning stages because most already offer mobile banking. FIs with no plans to offer mobile banking range from as few as three percent in Atlanta to as many as 11 percent in Minneapolis.

Figure 8: Status of FIs Offering Mobile Banking Services by District (percent of respondents)



Q11. When did you start offering mobile banking to your customers? (Check ONE)

V. Mobile Infrastructure

This section provides information on the technology platforms and operating systems being used by FIs to support their mobile banking services.

Before considering the services offered by banks and credit unions, it is helpful to understand a little about the underlying mobile banking technology platforms which help to drive (or determine who signs up for) the types of services that may be offered to consumers and businesses. Mobile platforms have evolved in sophistication with expanded technology options over time, but there are still basically three ways an institution supports its mobile customers:

- Downloadable mobile app
- Website for mobile banking
- SMS text messaging (SMS)

An FI may offer any or all of these in combination.

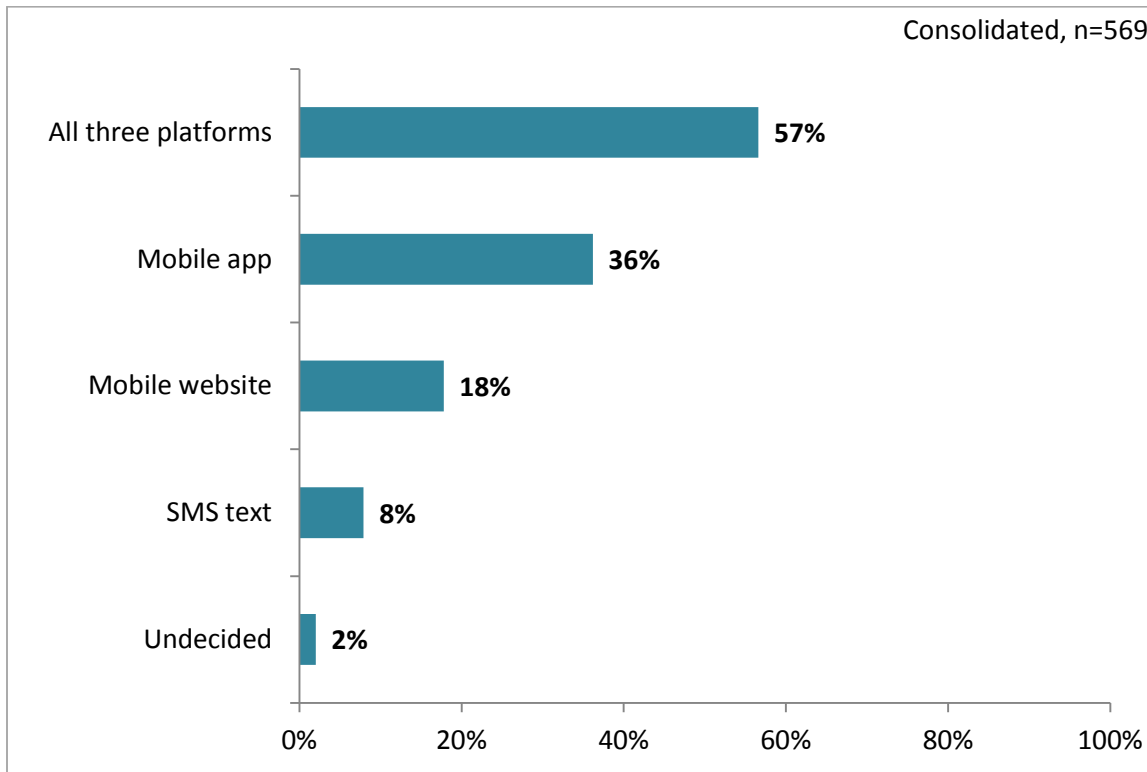
Support for all three platforms has increased over time as institutions strive to satisfy their customers' different types of mobile banking needs through multiple access platforms. Today, more than half of the respondents use all three options to present their mobile banking services to the market, although not all services are supported on every platform. This represents 57 percent of respondents on average – ranging from two-thirds of respondents in Boston and Dallas to 41 percent in Minneapolis (**Figure 9**).

The underlying detail is revealing. More FIs are selecting mobile apps for a variety of banking services and are disengaging from SMS other than for alerts. Where all three channels are not supported, 37 percent of respondents offer downloadable apps, 18 percent support mobile websites, and eight percent offer SMS either singly or in combination with another platform. Twelve percent of the consolidated respondents support mobile apps and mobile website; six percent support mobile apps and text messaging; and 18 percent support only mobile apps. Conversely, only one percent supports mobile website and text messaging; five percent support mobile website only; and one percent support just SMS. Typically, FIs offer SMS so customers can check balances or transaction history and receive alerts, rather than conduct financial transactions, which are higher risk and require a greater degree of security.

The FRBB-NEACH report found that the number of institutions supporting text messaging as their only platform dropped from 19 FIs in 2013 to just seven institutions in 2014. Javelin noted in its “2014 Mobile Banking Financial Institution Scorecard” that only 24 percent of mobile users accessed their

mobile banking services via SMS and that it was the only mobile banking access method to show a decline in FI support in 2014.¹⁶

Figure 9: Mobile Platforms Selected by FI Respondents (percent of respondents)



Q12. What mobile banking platform do you (plan to) use? (Select ALL that apply)

Industry research shows that 43.5 percent of U.S. consumers have Apple iOS smartphones, while 52.1 percent have smartphones supported by the Android operating system.¹⁷ Given that the two mobile operating systems combined represent 96 percent of the U.S. smartphone market – very strong customer adoption – FIs must support both to be competitive. **Figure 10** highlights that on average 98 percent of respondents support Apple and 96 percent support Android devices.

Less than one-third of respondents support other mobile operating systems. On a consolidated level, 28 percent supported Microsoft and 22 percent supported Blackberry. Minneapolis pushed both percentages up slightly: the district showed 43 percent and 38 percent support rate, respectively, for Microsoft and Blackberry. The data from the prior FRBB-NEACH survey indicates that support for Microsoft is

¹⁶ Mary Monahan, “2014 Mobile Banking Financial Institution Scorecard: Competition Heats Up as Mobile Offerings Mature,” *Javelin Strategy & Research*, December 2014.

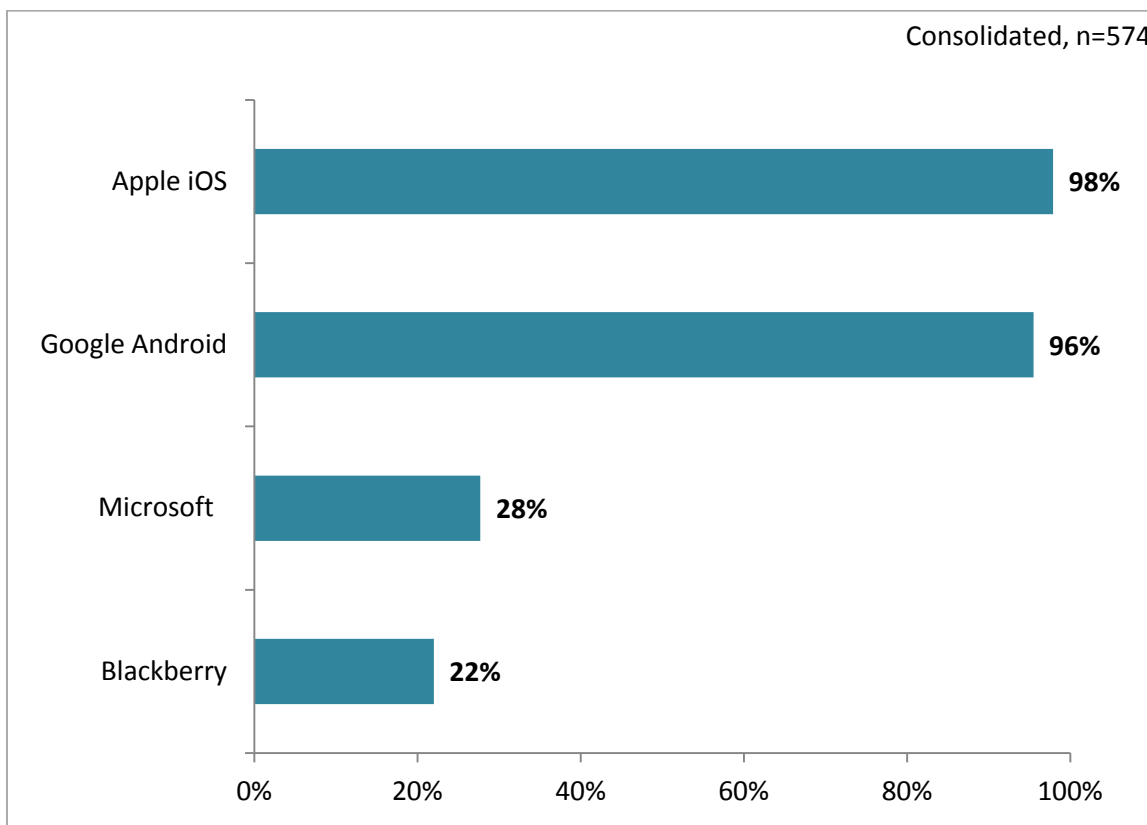
¹⁷ “comScore Reports May 2015 U.S. Smartphone Subscriber Market Share,” July 2, 2015

<http://www.comscore.com/Insights/Market-Rankings/comScore-Reports-May-2015-US-Smartphone-Subscriber-Market-Share>

growing slightly, while support for Blackberry decreased from 2013 to 2014. In the industry as a whole, business support for Blackberry has been eroding over time and traction outside of the business environment with U.S. consumers was never high. Generally, as FIs gain experience with mobile banking services, they have more knowledge of what mobile devices their customers use and may drop less popular operating systems.

Banks and credit unions show similar results for all categories. Ninety-eight percent of banks and 97 percent of credit unions support Apple iOS. Also close are the percentages of banks (95 percent) and credit unions (97 percent) that support mobile phones using the Android operating system. The differences are slightly larger for support of Microsoft (banks: 26 percent and credit unions: 31percent) and Blackberry (banks: 21 percent and credit unions: 25 percent), but are generally trending the same way with much lower support of these two operating systems.

Figure 10: Mobile Operating Systems FIs Support for Mobile Banking Apps (percent of respondents)

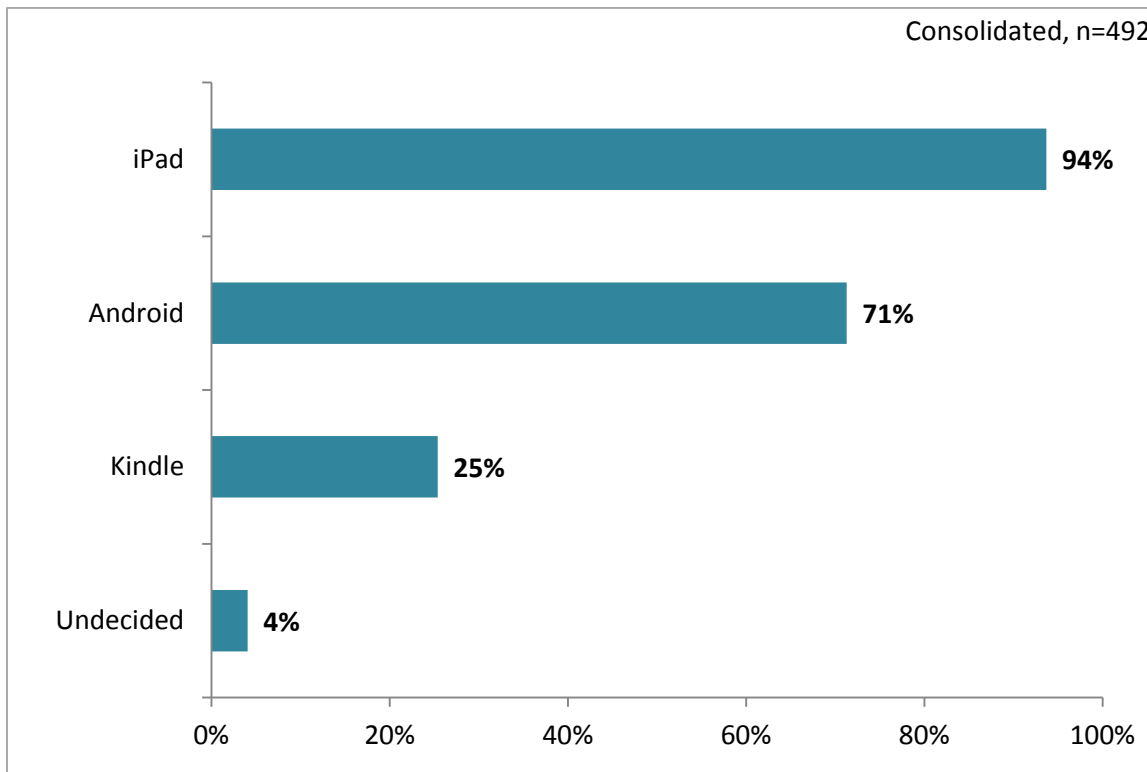


Q13. Which of these mobile operating systems does or will your mobile banking app support? (Select ALL that apply)

As the uptake of tablet computers accelerates, many FIs are introducing mobile banking apps that run on tablets. Almost 500 FIs responded about their plans to support apps on a tablet (**Figure 11**). The gap between Apple and Android is greater for tablets than it is for mobile phones: 94 percent of respondents support or plan to support the iPad, while 71 percent either support or plan to support Android tablets.

Twenty-five percent of respondents also support the Kindle, and most are banks (68 percent). A small group of respondents remain undecided about which tablets (if any) to support. Given increasing consumer tablet usage, and the expectation that businesses will be heavy tablet users, more FIs will likely support Apple, Google Android, and other tablets over time, based on what their business customers use.

Figure 11: Tablet Support for Mobile Banking Apps by FI Respondents (percent of respondents)



Q14. Do you (plan to) offer mobile banking services via a tablet application? (Check ALL that apply)

Figure 12 presents FIs' use of mobile banking vendors. Not surprisingly, the three large core processing vendors – Fiserv, FIS, and Jack Henry – are the chief providers of mobile banking solutions to most respondents. Fiserv leads for banks and credit unions, with 27 percent of all respondents selecting them as their mobile banking vendor. For banks only, the number two choice was FIS (15 percent), which is used by 12 percent of all FI respondents, but only 3 percent of credit unions. Overall for credit unions, the number two choice was Access Softek (18 percent). The FI results for Atlanta, Boston, and Minneapolis are consistent with the consolidated FI results in terms of the top three vendors. In Richmond, however, the second ranked vendor for all FIs was Digital Insight, and in Dallas, First Data was third.

Credit unions tend to rely on a host of smaller local or regional providers, too many to enumerate except as “Other” providers. Moreover, compared to banks, credit unions differ significantly in how they use core processing providers – in part due to their smaller size and scope of business. Credit unions in all districts, except Boston, selected Fiserv as the primary provider. (Boston credit unions selected Access Softek.) Credit unions in all districts other than Atlanta ranked Digital Insight second, while in Atlanta Access Softek edged out Digital Insight (13 percent to 11 percent). These outliers, however, reversed the consolidated credit union second and third positions.

In aggregate, however, the three large core processors are used by 50 percent of FI respondents and the next four processors are used by another 25 percent. The remaining 22 percent encompasses many other providers with at least one percent share of the market, as well as the 16 percent using “Other” providers.

Figure 12: Mobile Banking Vendors used by Financial Institutions (% of respondents)

Mobile Banking Vendors	All Respondents (%) (n=578)	Banks (%) (n=405)	Credit Unions (%) (n=173)
Fiserv	27%	29% (1)	23% (1)
50% FIS	12%	15% (2)	3%
Jack Henry	11%	14% (3)	5%
Digital Insight	9%	7%	13% (3)
Access Softek	6%	1%	18% (2)
25% First Data	5%	7%	1%
Q2 eBanking	5%	6%	1%
ACI	3%	3%	3%
MEA	2%	3%	1%
Malauzai	2%	2%	1%
In-house	2%	1%	2%
COCC	2%	2%	1%
Monitise	1%	1%	1%
Other	16%	10%	26%

Q15. What company provides your mobile banking system?

VI. Mobile Banking Results

Mobile Products and Services Offered

The 2014 survey asked about 18 different mobile offerings in the following categories:

- Basic information about the institution (e.g., ATM, branch locator)
- Account and transaction information and history
- Funds transfer
- Bill payment and presentment
- Advanced services (including person-to-person (P2P), mobile RDC, international remittances)
- Credit and debit information and history

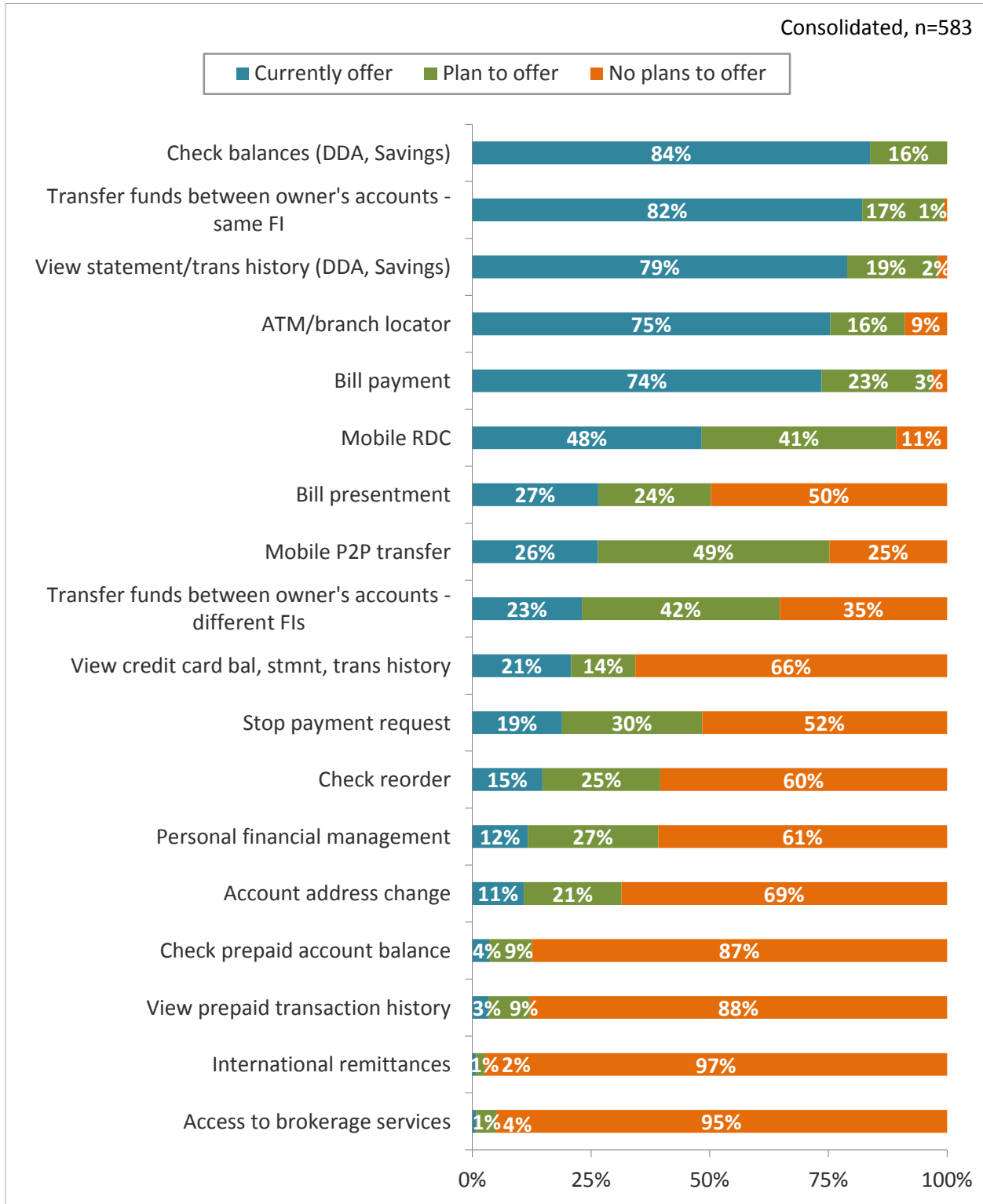
Five basic services are offered by about 75 percent of the respondents, and most of the remaining 25 percent plan to offer them by 2016. They are:

- | | |
|---|--------------|
| – Checking balances (DDA, Savings) | – 84 percent |
| – Transferring funds between a single owner’s account within the FI | – 82 percent |
| – Viewing statements and transaction history (DDA, Savings) | – 79 percent |
| – ATM / branch locator | – 75 percent |
| – Bill payment | – 74 percent |

Financial institutions assigned lower priority to several other services, but they are still offered by at least half of the respondents. These include account address change (69 percent); viewing credit card information (66 percent); personal financial management (61 percent); check reordering (60 percent); and stop payments (50 percent). Some of these services (such as reordering checks and making address changes) create more risk and require more “know your customer” information.

Figure 13 provides an aggregate view of which mobile services respondents offer, are planning to offer, or have no plans to offer.

Figure 13: Consolidated View of Standard Mobile Banking features Offered by FIs (percent of respondents)



Q16. Which of the following mobile banking services do you currently offer or plan to offer?

Respondents were also consistent in their decisions about the mobile banking services that they do not plan to offer, which include:

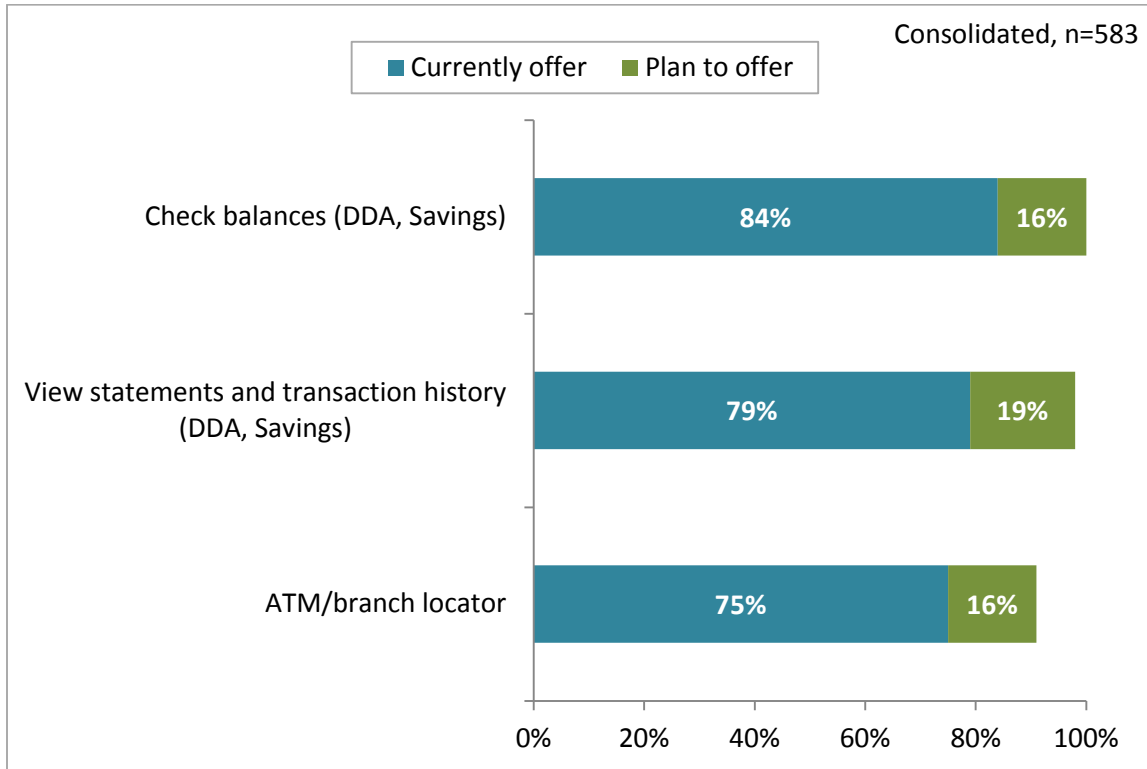
- International remittances – 97 percent
- Access to brokerage services – 95 percent
- Viewing prepaid account history – 88 percent
- Checking prepaid account balances – 87 percent

Many smaller institutions do not offer these services via the online channel or at all, so the fact that respondents have no plans to support them in the mobile channel is not surprising.

Three informational capabilities are considered standard for any mobile banking program: the ability to (1) check DDA and savings account balances; (2) view statements and transaction history (DDA, savings); and (3) locate ATMs and branches (**Figure 14**). Richmond led the districts in all three measures (87 percent, 82 percent, and 89 percent respectively) compared to consolidated averages of 84 percent, 79 percent, and 75 percent. Minneapolis results were about 20 points lower than those of other districts because its respondents are newer to mobile banking. However, they “plan to offer” these services to close the gap in the near term.

By the end of 2016, all respondents plan to have balance-checking capabilities, and upwards of 94 percent plan to have statement and transaction history available for viewing. Providing ATM and branch location information – clearly a convenience feature – remains lower on the priority list.

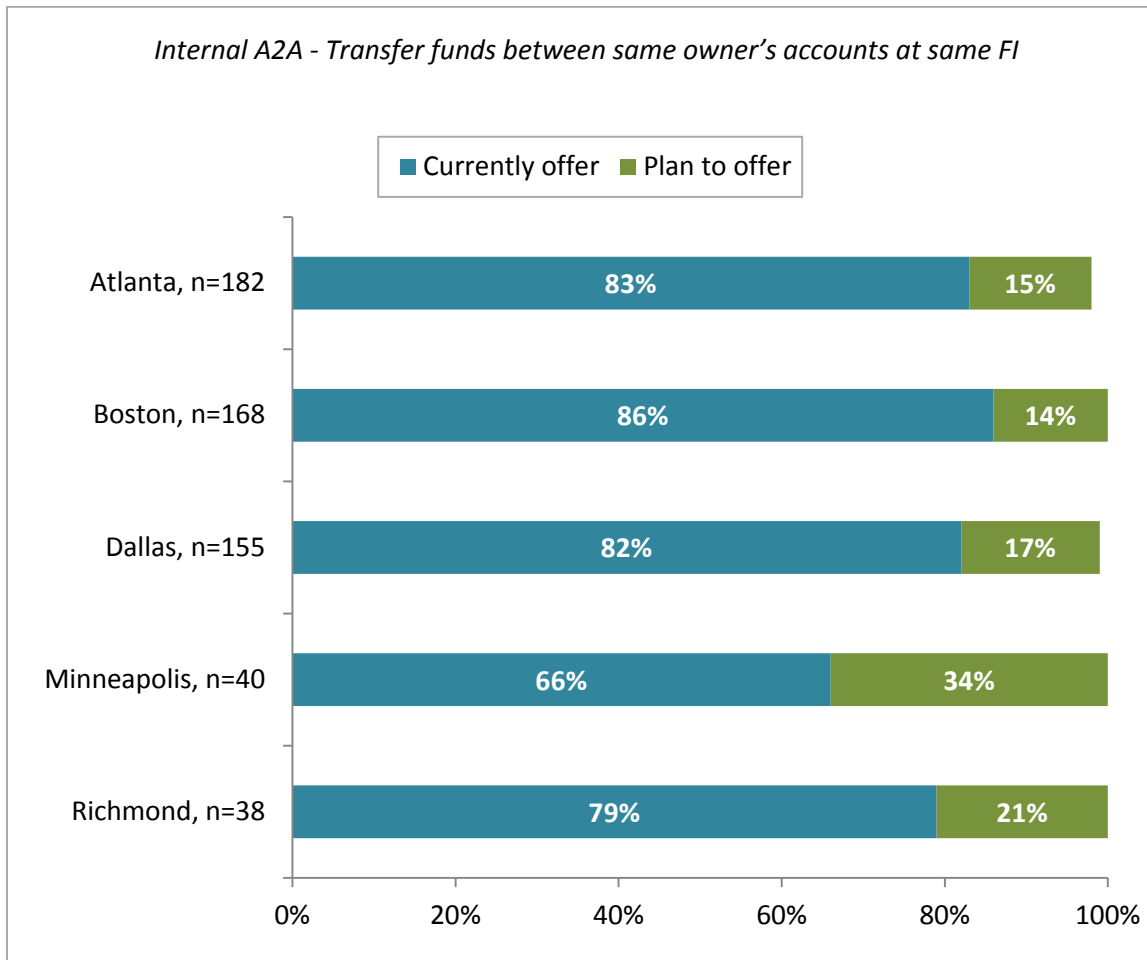
Figure 14: Standard Mobile Banking Features Currently Offered by FIs (percent of respondents)



Q16. Which of the following mobile banking services do you currently offer or plan to offer?

Most FIs allow consumers (and businesses) to transfer funds online between their accounts within the same institution. Eighty-three percent of FIs have extended this account-to-account (A2A) service to the mobile channel (**Figure 15**). And in all districts, respondents not offering internal A2A today have plans to do so by 2016.

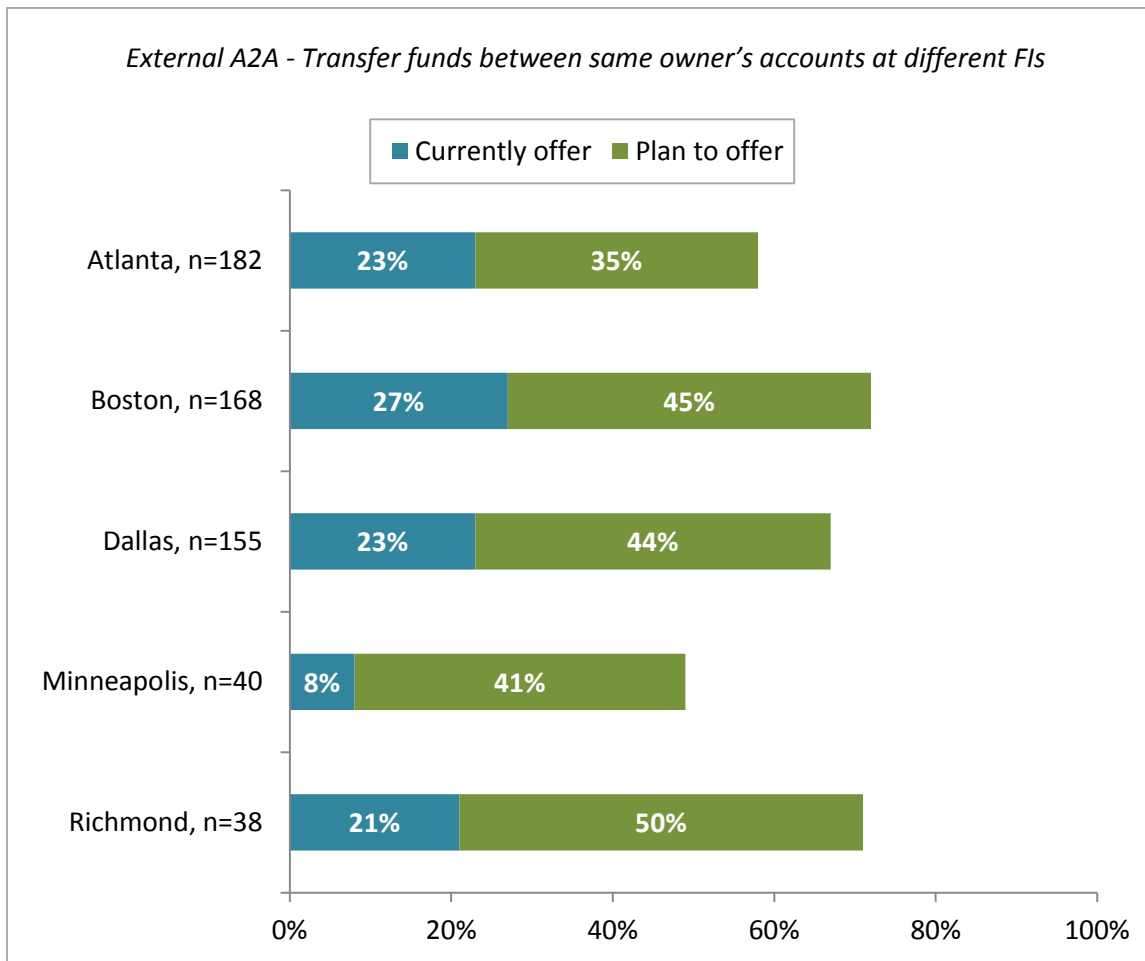
Figure 15: Internal A2A Mobile Transfer Services Offered by FIs (percent of respondents)



Q16. Which of the following mobile banking services do you currently offer or plan to offer?

Enabling customers to transfer funds between accounts at different FIs (external A2A transfers), however, is offered by less than a quarter of respondents due to its higher risk. Although such risk is not a mobile issue *per se*, extending the service to the mobile channel increases potential exposure to fraud and money laundering. On average, only 23 percent of respondents offer external A2A as a mobile banking service currently, although 42 percent are planning to do so in the next two years – percentages that vary somewhat by district (**Figure 16**).

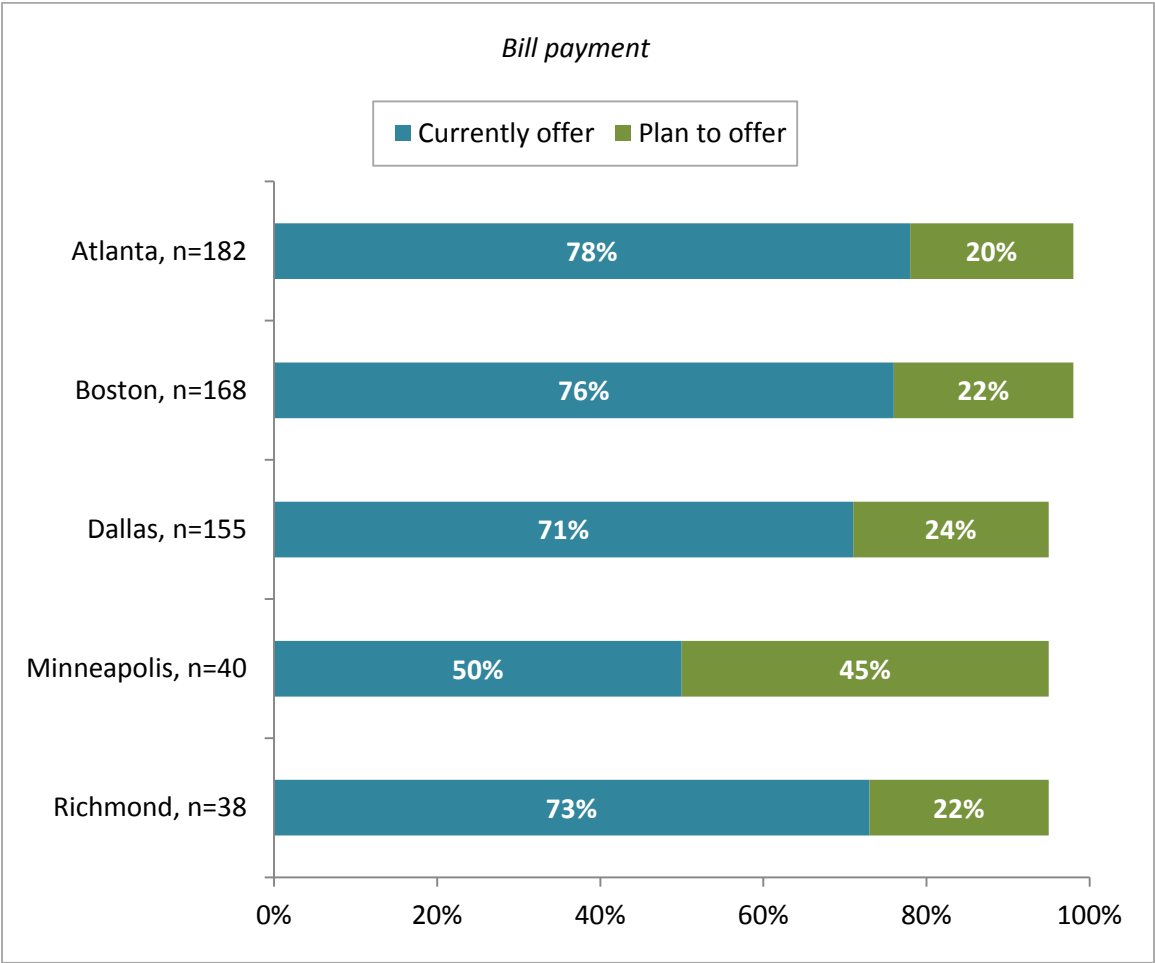
Figure 16: External A2A Mobile Transfer Services Offered by FIs (percent of respondents)



Q16. Which of the following mobile banking services do you currently offer or plan to offer?

Bill payment was one of the first “transactional” mobile banking services that FIs implemented once they had laid the foundation for customers to check balances and view statement/transaction history via mobile. Today, bill pay ranks just behind internal A2A services, with 74 percent of respondents offering the service (Figure 17).

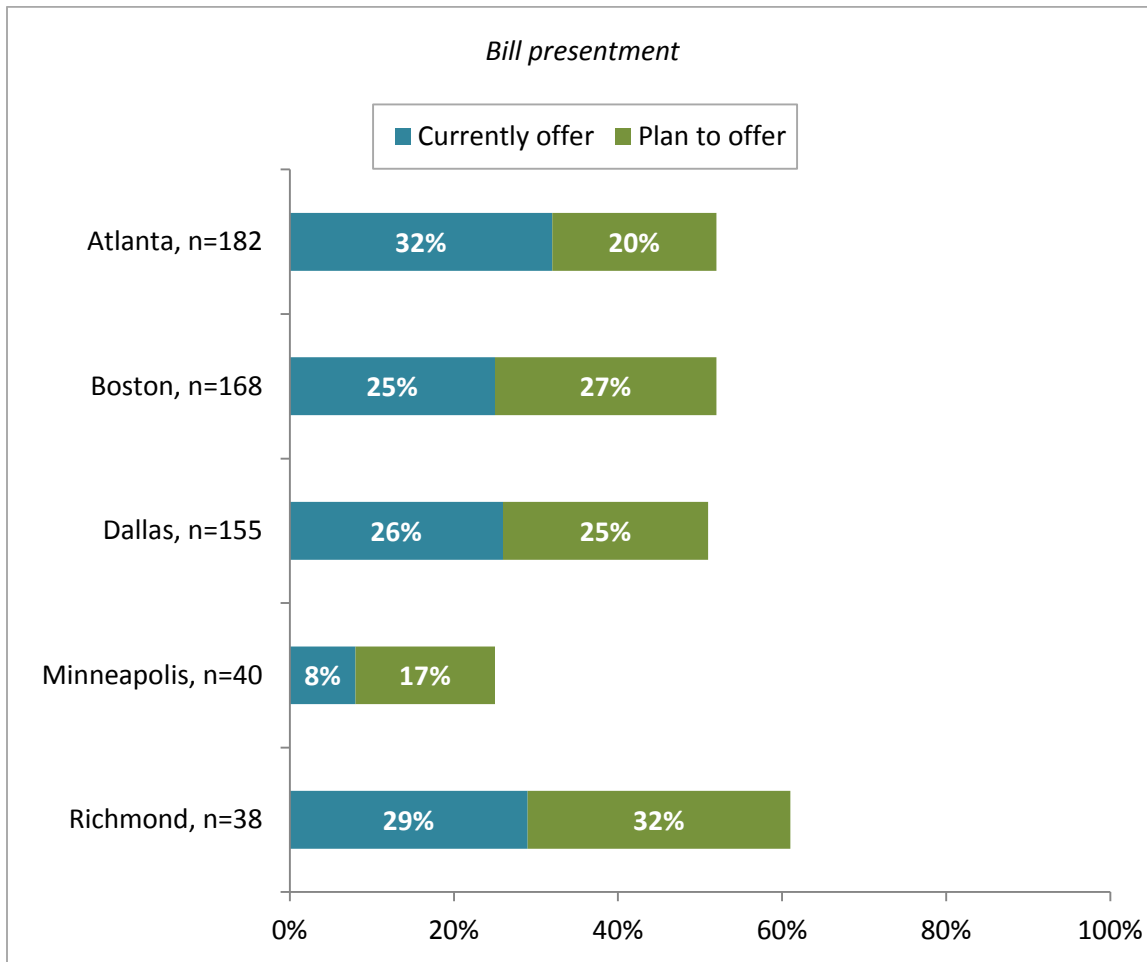
Figure 17: Bill Payment Service Offered by FIs (percent of respondents)



Q16. Which of the following mobile banking services do you currently offer or plan to offer?

For about half the respondents, bill presentment is a logical next step. Respondents offering bill presentment via the mobile channel hover around 30 percent generally, with about another quarter of them planning to offer the service (Figure 18). Both bill pay and bill presentment services seem to parallel the online banking experience.

Figure 18: Bill Presentment Service Offered by FIs (percent of respondents)



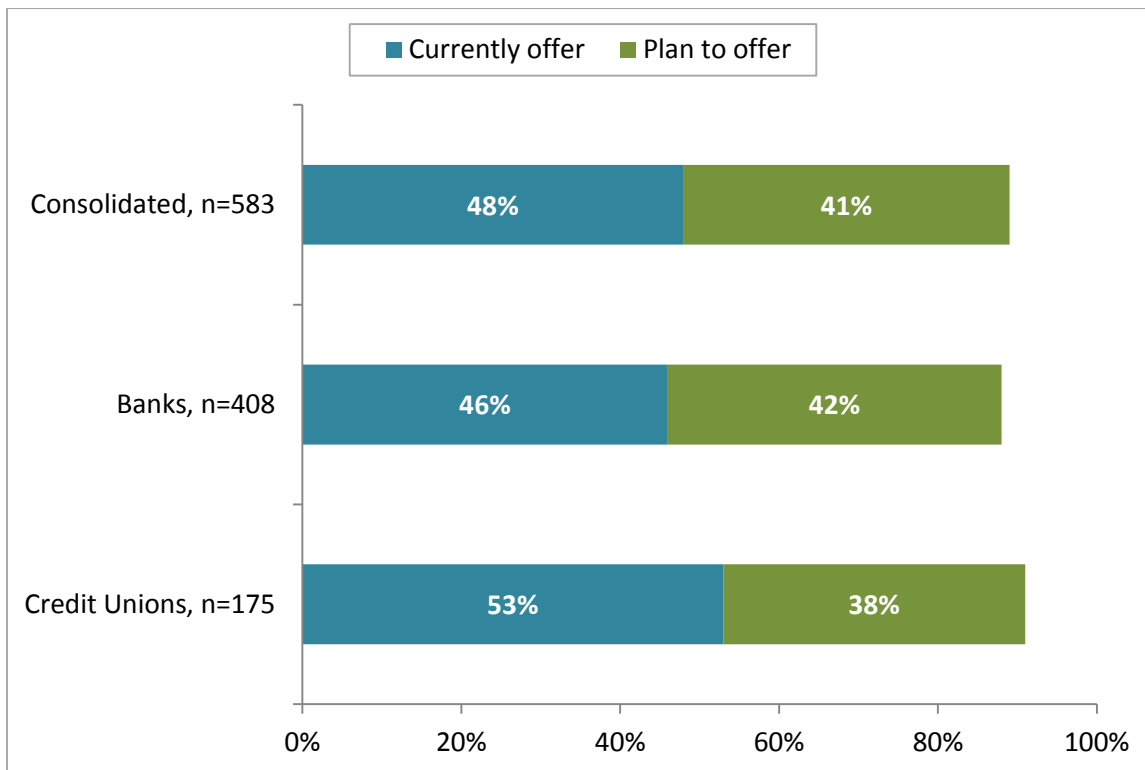
Q16. Which of the following mobile banking services do you currently offer or plan to offer?

Many FIs are offering mobile remote deposit capture (mRDC) and adding person-to-person (P2P) payment features to their online and mobile banking services. These services provide more consumer value by leveraging the convenience of the mobile channel.

Mobile RDC, in particular, is becoming a standard mobile service to enable remote check deposits. Nearly nine in ten (89 percent) of all FI respondents currently offer or plan to offer mRDC within the next 24 months (**Figure 19**). For a growing number of bank customers, mRDC is becoming the preferred deposit method. Celent estimates that mRDC will account for one-third of retail bank deposits by year-end 2015 and for half of deposits by end of 2016.¹⁸ The FR Board survey found that more than half (51 percent) of mobile banking customers used mRDC in 2014.¹⁹

In total, about 92 percent of banks and credit unions with assets between \$100 million and \$500 million currently offer or plan to offer mRDC services. The difference lies in the details – for example, 60 percent of credit unions in this tier currently offer mRDC compared to 34 percent of banks; and 53 percent of banks plan to offer mRDC compared to 33 percent of credit unions.

Figure 19: FIs Offering Mobile Remote Deposit Capture (percent of respondents)



Q16. Which of the following mobile banking services do you currently offer or plan to offer?

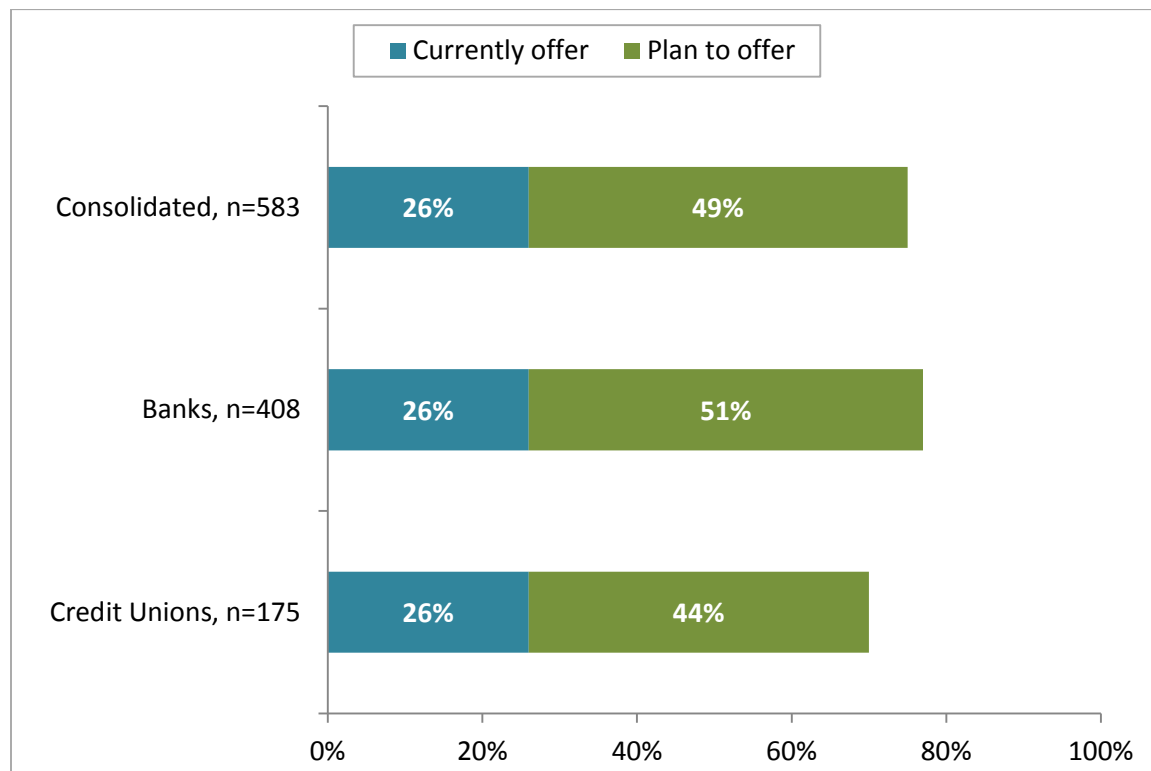
¹⁸ "Mobile remote deposit growth set to accelerate branch decline – Celent," *Finextra*, May 29, 2015 <http://www.finextra.com/news/fullstory.aspx?newsitemid=27407>.

¹⁹ "Consumers and Mobile Financial Services survey," *Board of Governors of the Federal Reserve System*, March 2015. <http://www.federalreserve.gov/econresdata/consumers-and-mobile-financial-services-report-201503.pdf>

Use of a mobile phone to make P2P money transfers is also growing. There are more bank and non-bank P2P solutions in the market, smartphones are near ubiquitous, and consumers are more reliant on mobile devices for different financial services. Companies such as PayPal, Dwolla, Venmo, Google, and Square provide consumer-centric P2P services, while payment processors such as Fiserv and FIS provide FI-centric services. ClearXchange, owned by several major banks, provides a P2P payment exchange among its members.

Comparatively, fewer FI respondents (26 percent) offer mobile P2P than mRDC services, but across the districts 49 percent are planning to add the feature within the next 24 months (**Figure 20**). Most FIs offer mobile P2P through their mobile vendor or deposit payment processor. According to the FR Board survey, 36 percent of mobile banking users transferred money via their mobile phone to another person in the U.S., and 31 percent received money from another person via mobile in 2014. More network connections among FIs and providers, however, are necessary to achieve ubiquity for this service.

Figure 20: FIs Offering Mobile P2P Money Transfer (percent of respondents)



Q16. Which of the following mobile banking services do you currently offer or plan to offer?

Several mobile banking features are considered niche services, not typically offered by smaller banks and credit unions. The services tend to be specialized, requiring scale or supporting more complex products. For this survey they include: access to prepaid accounts, brokerage services, and international remittances. As indicated by most respondents, these services are not a priority for mobile (**Figure 21**). Fewer than five percent of FIs currently offer them today, and fewer than 10 percent are planning to offer them in the near future.

Figure 21: Mobile Banking Features of Least Interest to Respondents (percent of respondents)

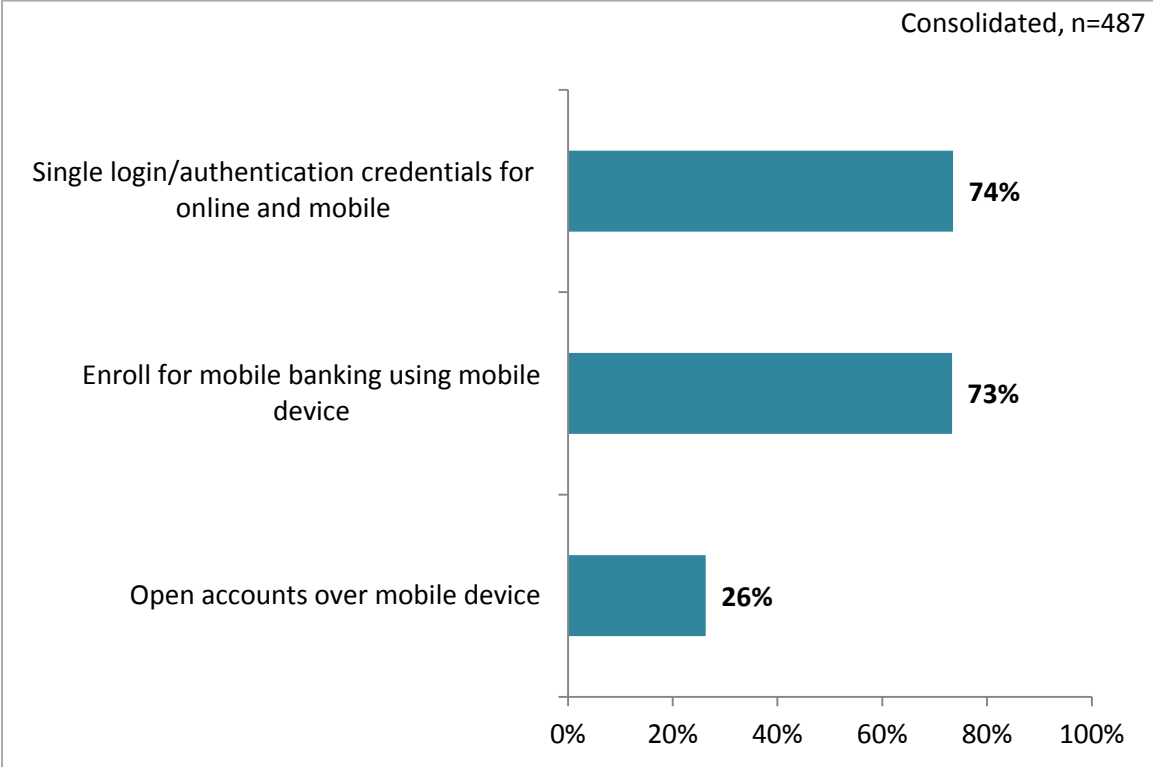
Consolidated, n=583			
Mobile Banking Feature	Currently Offer	Plan to offer	NO PLANS to offer
Check prepaid account balances	4%	9%	87%
View prepaid account transaction history	3%	9%	88%
Access to brokerage services	1%	4%	95%
International remittances	1%	2%	97%

Q16. Which of the following mobile banking services do you currently offer or plan to offer?

Mobile enrollment and single log-in functions are close to being mainstream. Nearly three-quarters of FIs allow or plan to allow customers to use the same (single) log-in authentication credentials for online and mobile account access; and to enroll for mobile banking services using their mobile device. These services are essential for providing ease of use and convenience, especially for customers who use their mobile phones for many activities throughout the day.

Offering mobile services related to account provisioning, authentication, and access requires FIs to be more diligent in their risk management practices. FIs recognize the potential risks associated with opening new accounts over any channel and, in particular, over the mobile channel. This is apparent in the low percentage (26 percent) of FIs considering the feature, which requires additional steps, including signatures, typically done in person (**Figure 22**). Nonetheless, more FIs are offering mobile customer set-up and access features to enhance their mobile services once the basic functionality is in place.

Figure 22: Advanced Mobile Banking Features Offered by FIs (percent of respondents)



Q17. Do you (plan to) offer the following features? (Check ALL that apply)

Even fewer FIs offer services that target the underbanked consumer segment. Across the five Fed Districts, only 15 percent of respondents targeted mobile banking products to the underbanked, and only 10 percent offered a bilingual mobile website or app. A slightly higher percentage of FIs in Dallas offer both features, 18 percent and 14 percent, respectively, indicating that some regional FIs are tailoring their mobile services to non-English speaking immigrant markets.

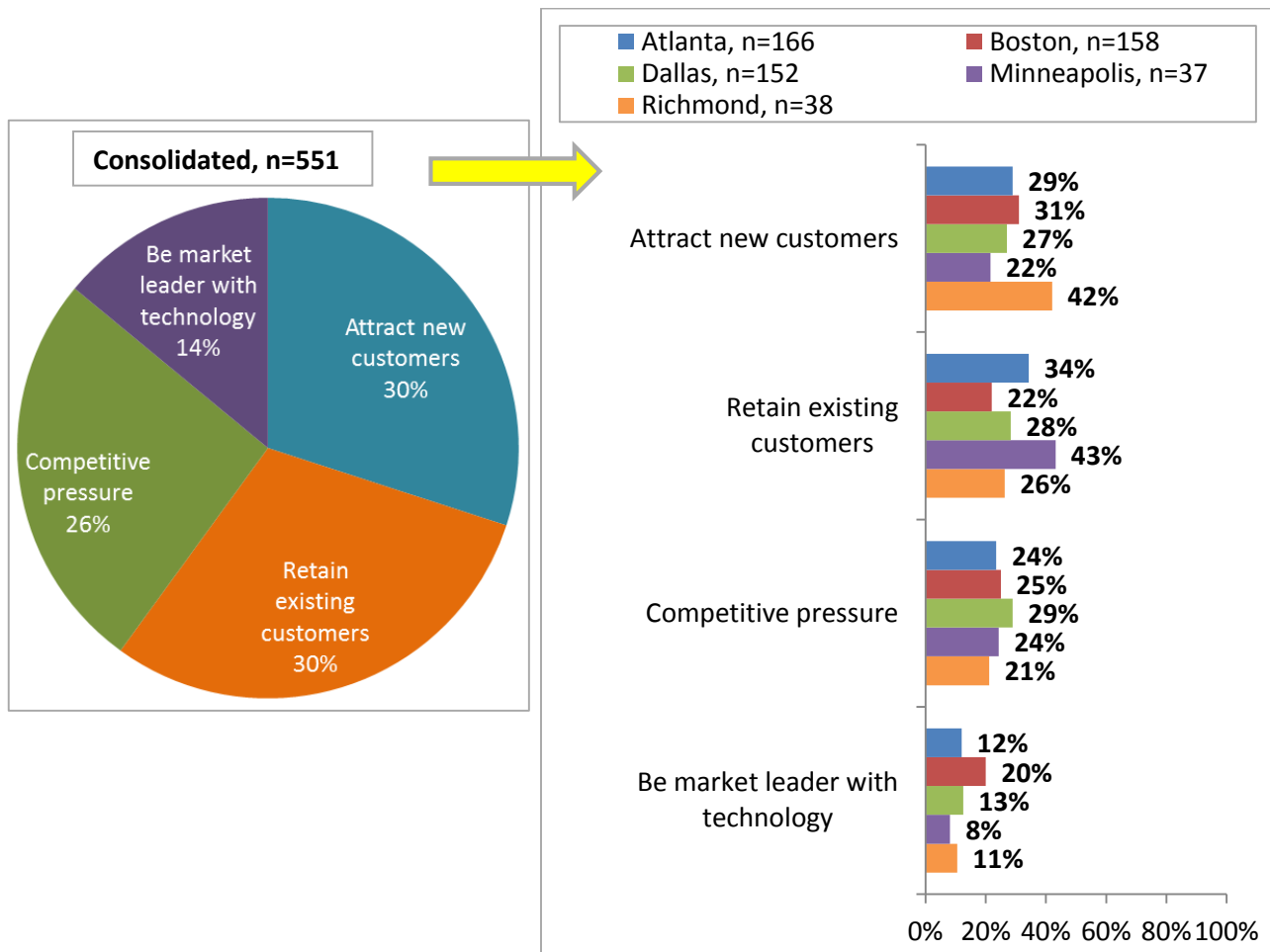
The FDIC estimated that nearly 28 percent of U.S. households are unbanked (9.6 million) or underbanked (24.8 million) in 2013.²⁰ The FDIC survey found that underbanked households were more likely to use mobile banking relative to other groups; 29.2 percent of underbanked households used mobile devices to access their accounts compared to 21.7 percent of fully banked households. Furthermore, the FR Board survey found that 90 percent of the underbanked have access to a mobile phone, 73 percent of which are smartphones; and nearly half (48 percent) of underbanked consumers used mobile banking. Given these findings, FIs in areas with such populations can use mobile banking services to attract new business.

²⁰ “2013 FDIC National Survey of Unbanked and Underbanked Households,” Federal Deposit Insurance Corporation, October 2014. <https://www.fdic.gov/householdsurvey/2013report.pdf>.

Business Decisions and Strategy for Mobile Banking

A number of key factors motivated FIs to offer mobile banking. Consistently FIs across all five Fed districts reported “customer retention” and “attracting new customers” as primary drivers (**Figure 23**). Interestingly, 43 percent of FIs in Minneapolis cited customer retention as a key factor, 13 percentage points higher than the aggregated results. Based on earlier survey findings in Boston, this focus on retention is more prevalent among FIs that are newer to mobile banking. FIs that have had experience with the mobile channel are using it to attract new, presumably younger, consumers, and in some cases, attract commercial customers. One-quarter of FIs indicated “competitive pressure” was a major reason to offer mobile banking, while “being regarded as a technology market leader” was a less important factor.

Figure 23: Top Reason FIs Offer Mobile Banking Services (percent of respondents)



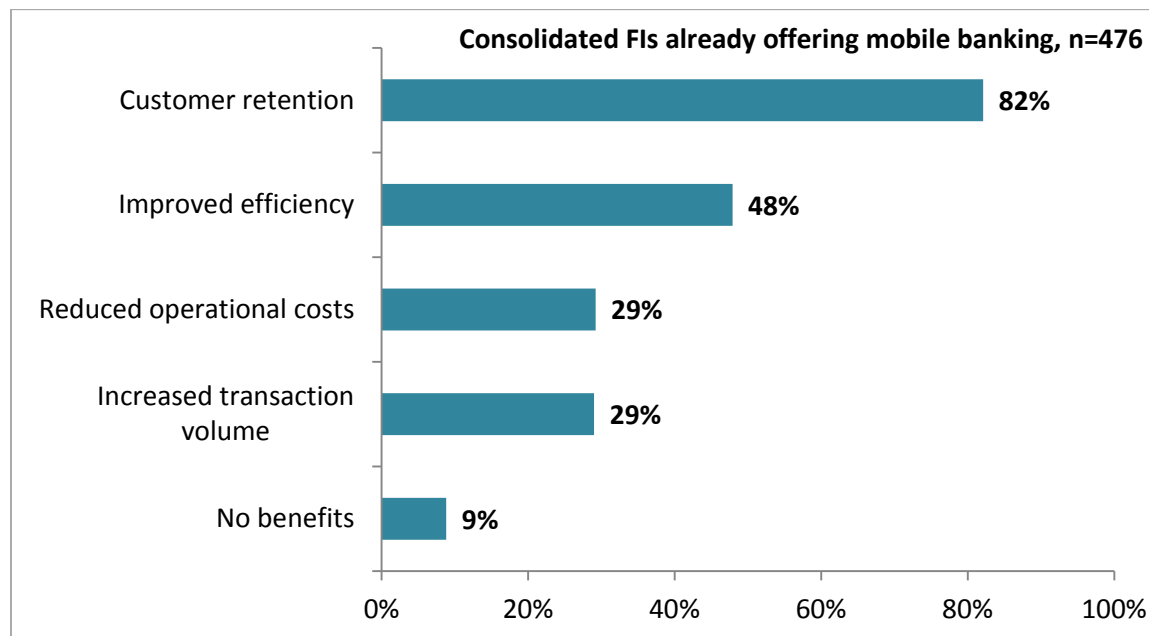
Q21. If you (plan to) offer mobile banking, what is your primary business reason? (Check only ONE)

Many FIs initially offer mobile banking services as a strategy to avoid losing existing customers to other FIs. Therefore it is not surprising that over 80 percent of the FI respondents view “customer retention” as a major benefit of mobile banking (**Figures 24 and 25**). About half of FIs reported “improved efficiency” as a benefit, likely from reduced calls or visits to branches for information about balances or transaction history that could be resolved using the mobile channel (as supported by various industry reports). Nearly one-third experienced “reduced operational costs” and “increased transaction volume.”

These results are consistent with broader industry trends. A March 2014 Fiserv study²¹ found that across all age categories, consumers who used digital banking channels generated higher revenue than non-digital bankers, and mobile bankers generated even higher revenue than those banking online. According to Javelin²², the average cost of a mobile transaction is \$0.10, about half that of a desktop computer transaction, and significantly less than the \$1.25 average cost of an ATM transaction, which makes mobile an attractive channel for FIs.

Those FIs finding “no benefits” may be offering mobile services for competitive reasons alone, or are too new to mobile to see benefits as yet.

Figure 24: Mobile Banking Benefits to FIs (percent of respondents)

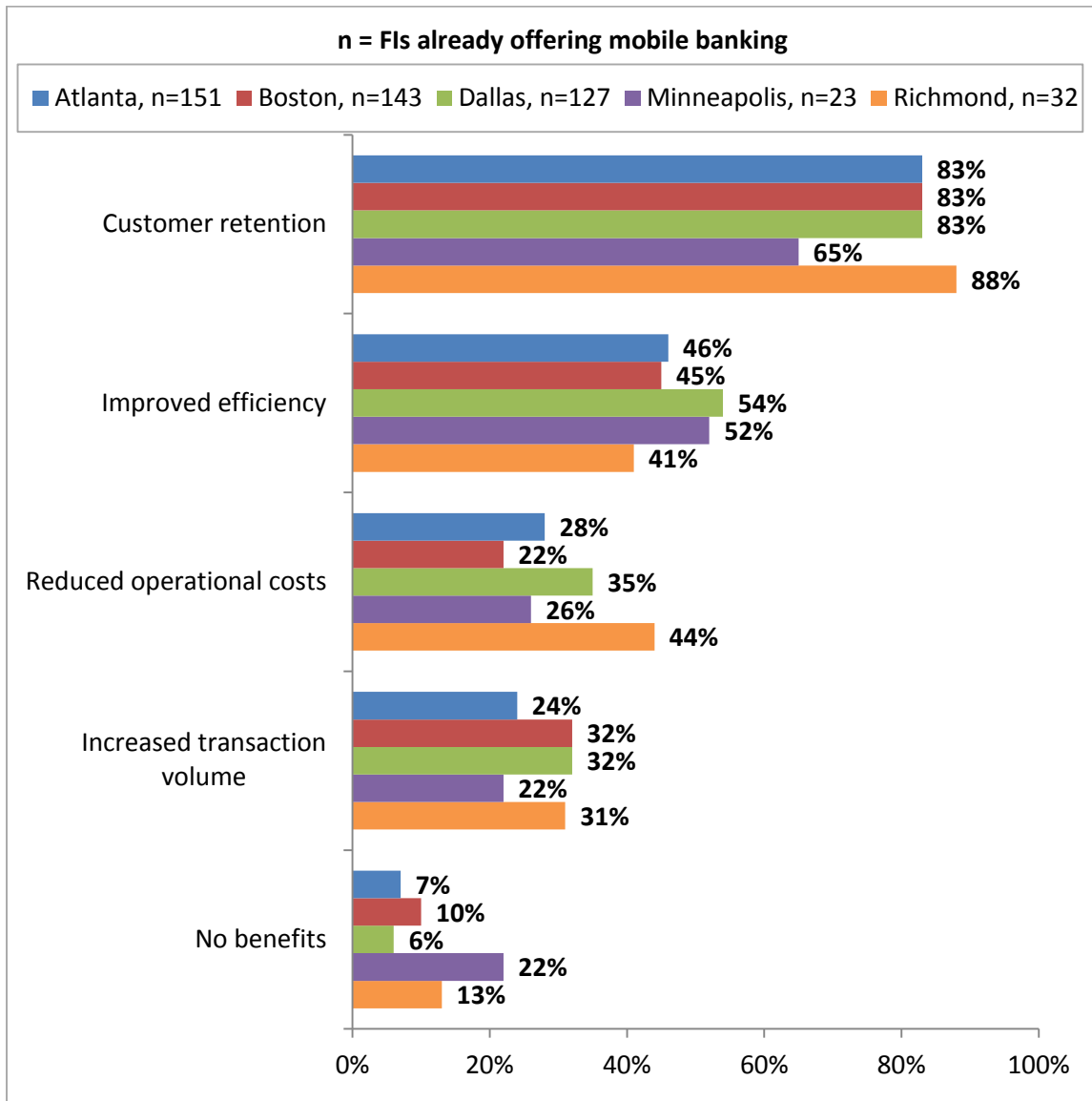


Q22. What business benefits have you achieved since offering mobile banking? (Check ALL that apply)

²¹ “Exceeding the Mobile Adoption Benchmark: Effective Strategies for Driving Greater Adoption and Usage,” Fiserv, August 2014 <https://www.fiserv.com/resources/Mobile-Adoption-Strategies-White-Paper-August-2014.pdf>

²² “Leveraging an Omni-channel Approach to Drive \$1.5B in Mobile Banking Cost Savings,” Javelin Strategy & Research, July 2013.

Figure 25: Mobile Banking Benefits to FIs by District (percent of respondents)

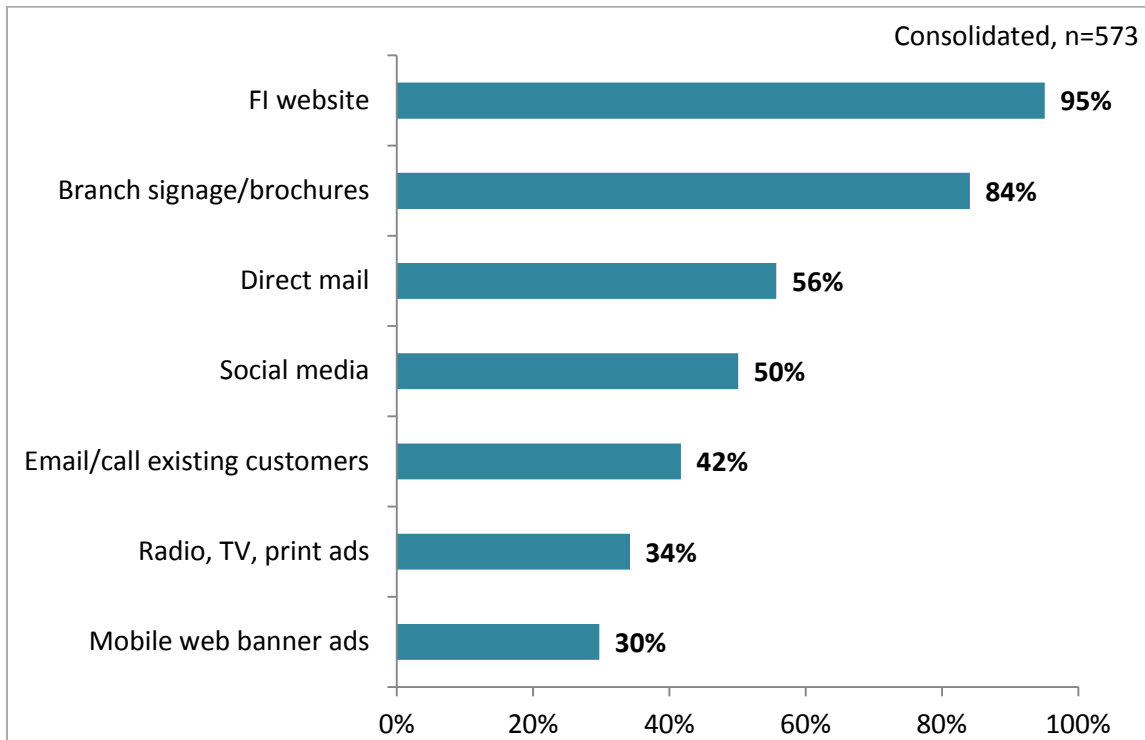


Q22. What business benefits have you achieved since offering mobile banking? (Check ALL that apply)

Marketing

Effective and robust marketing strategies are essential to improving customer adoption. FIs are using a mix of marketing tools that includes both traditional and digital media to build awareness and increase adoption and use of mobile banking (**Figure 26**). Almost all FIs (95 percent) leverage their websites to advertise their mobile banking capabilities. Many (84 percent) also continue to use traditional print media, such as branch signage and brochures, to market both online and mobile services. About half of the respondents use social media, to reach younger consumers in particular. Data from the FRBB-NEACH surveys show a shift by both banks and credit unions from advertising and marketing on external websites, i.e., “banner ads on other mobile apps or websites” to promotion within the institution. As fewer customers visit branches, FIs have less face-to-face contact with them and are exploring or expanding use of alternate channels to market and build awareness of their mobile banking services. Half of the respondents either use or are planning to use social media and/or email to market to existing customers.

Figure 26: FIs Use a Mix of Marketing Tools to Promote Mobile Banking (percent of respondents)



Q23. How do you (plan to) market your mobile banking services? (Check ALL that apply)

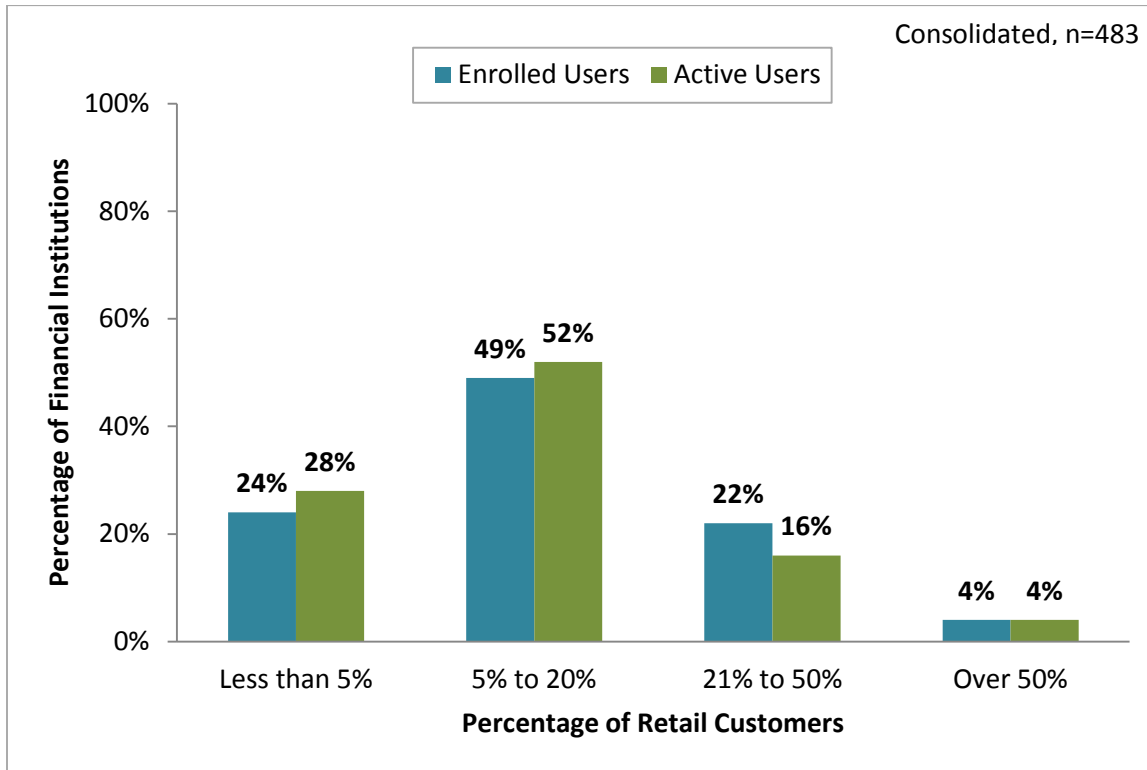
Adoption by Consumers and Businesses

Financial institutions have been cautious about rolling out mobile banking services to consumers and, more recently, to businesses. The survey history from New England shows a pattern of FIs progressing from a soft launch (often with FI employees), to selected retail customers, and then to retail customers more generally. Until the 2014 survey, no more than five percent of an institution's consumer base and less than one percent of its business base (if any) were actively using mobile banking services. From early 2013 to July/August 2014 (when the FRBB-NEACH surveys were conducted), however, there was a significant jump in consumer adoption rates. For the first time in the survey's history, 2014 saw rates jump from "less than 5 percent" to "5 percent to 20 percent," or more.

Today, there is a more active environment for enrolling and engaging mobile banking users, with active users only slightly lagging enrollments. Of the consolidated responses, just 28 percent and 24 percent, respectively, are from FIs with fewer than five percent of their retail customers actively using or enrolled in mobile banking (**Figure 27**). The largest group of FIs (52 percent) has active users in the 5-to-20 percent range. For 16 percent of FIs, active mobile banking users range from 21-to-50 percent of their retail customers. Although only four percent of the FIs have more than 50 percent of their retail customers actively using mobile banking, the shift from 2013 to 2014 represents substantial progress, especially given that most respondents are smaller banks and credit unions.

As shown in the historical trends for the New England district FIs, it can take several years to increase use. As a result, in districts where FIs are newer to mobile banking, active consumer usage tends to be lower (**Figure 28**). Given the trends in the mobile landscape, however, both enrollments and activity are likely to accelerate going forward.

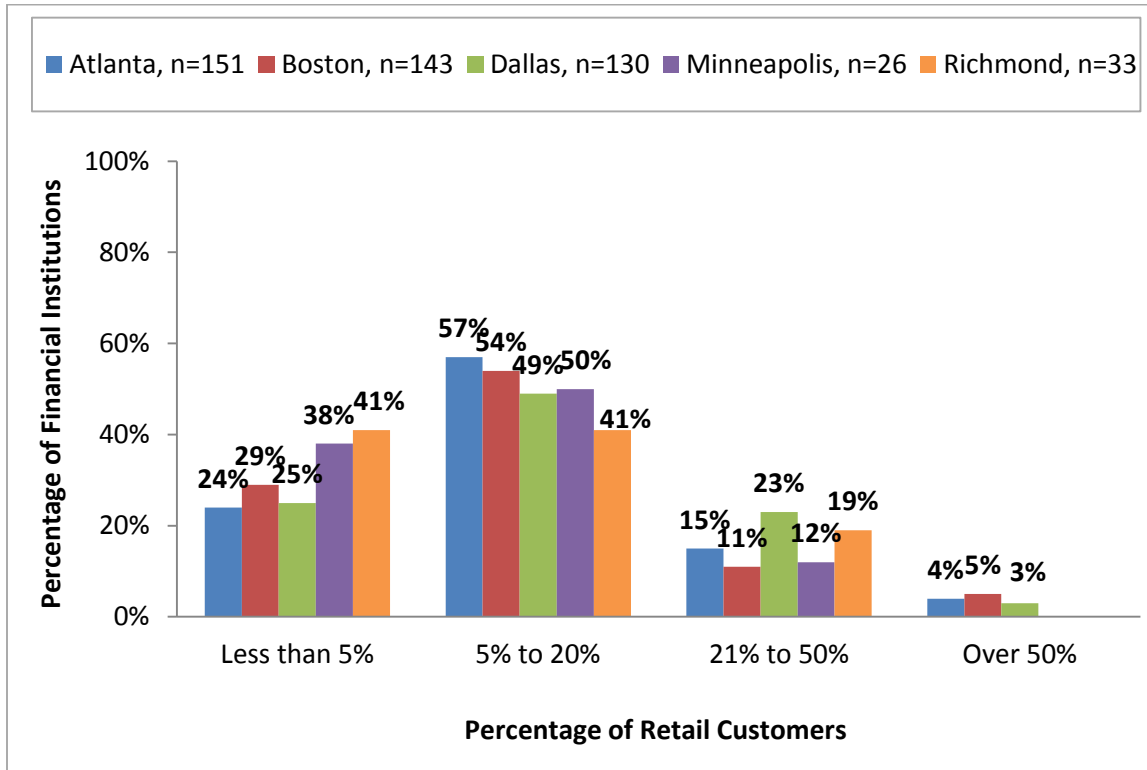
Figure 27: Percentage of FIs with Enrolled and/or Active Mobile Retail Customers –Consolidated View²³ (percent of respondents)



Q24. What percentage of your retail customers has used your mobile banking services?

²³ The vertical Y axis shows the percentage of FIs with active RETAIL mobile banking users. The horizontal X axis shows the percentage ranges of **customers** adopting mobile banking. For example, 52% of FIs have between 5-20% of customers who have adopted mobile banking at their bank or credit union. Only 4% have over 50% adoption. So there is still a lot of work to do to build adoption.

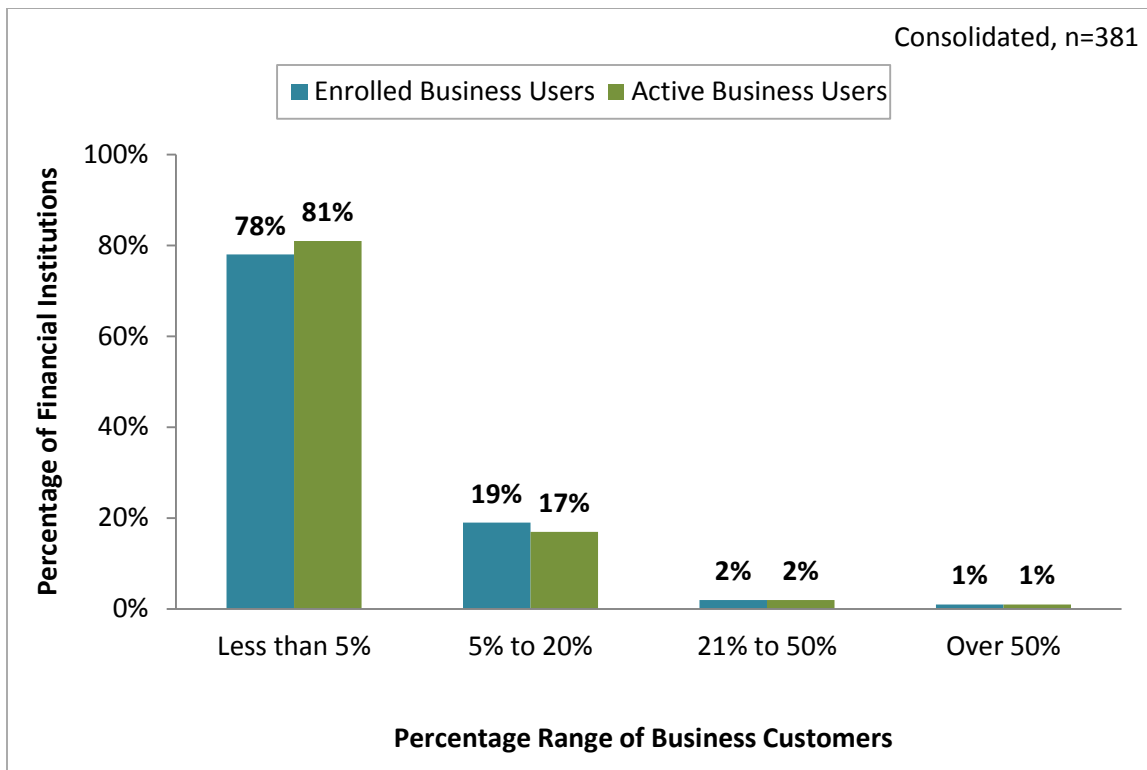
Figure 28: Percentage of FIs with Active Retail Mobile Banking Users by District (percent of respondents)



Q24. What percentage of your retail customers has used your mobile banking services?

As noted earlier, a few FIs began to offer mobile banking services to businesses after achieving some success and traction with consumers. The percentage of active business users, therefore, lags that of consumers. At the same time, very few FIs customize or market their mobile banking services to businesses. Instead they offer the same functions to businesses that they offer to consumers, which has impeded business adoption. The result is that active mobile business users remain in the lowest adoption tier: 81 percent of consolidated respondents had fewer than five percent of their business customers converted to active banking users. Enrollments are somewhat higher (19 percent of respondents have enrollments in the “5 percent to 20 percent” range), suggesting that there is some forward motion in the process of converting businesses to mobile banking despite the fact that active usage is still low (**Figure 29**).

Figure 29: Percentage of FIs with Enrolled and/or Active Mobile Business Customers – Consolidated View (percent of respondents)



Q27. What percentage of your commercial customers has used your mobile banking services?

According to research from Malauzai Software²⁴, businesses use the mobile channel for several functions, in particular checking balances and transaction history; making internal transfers; and depositing checks remotely. The last service is especially relevant to small businesses (e.g., plumbers or electricians) for whom mobility is essential (i.e., where service takes place at a site other than the business' location). Malauzai notes that businesses also desire services such as ACH and wire transfer initiation, as well as more specialized balance reporting and mobile account opening.

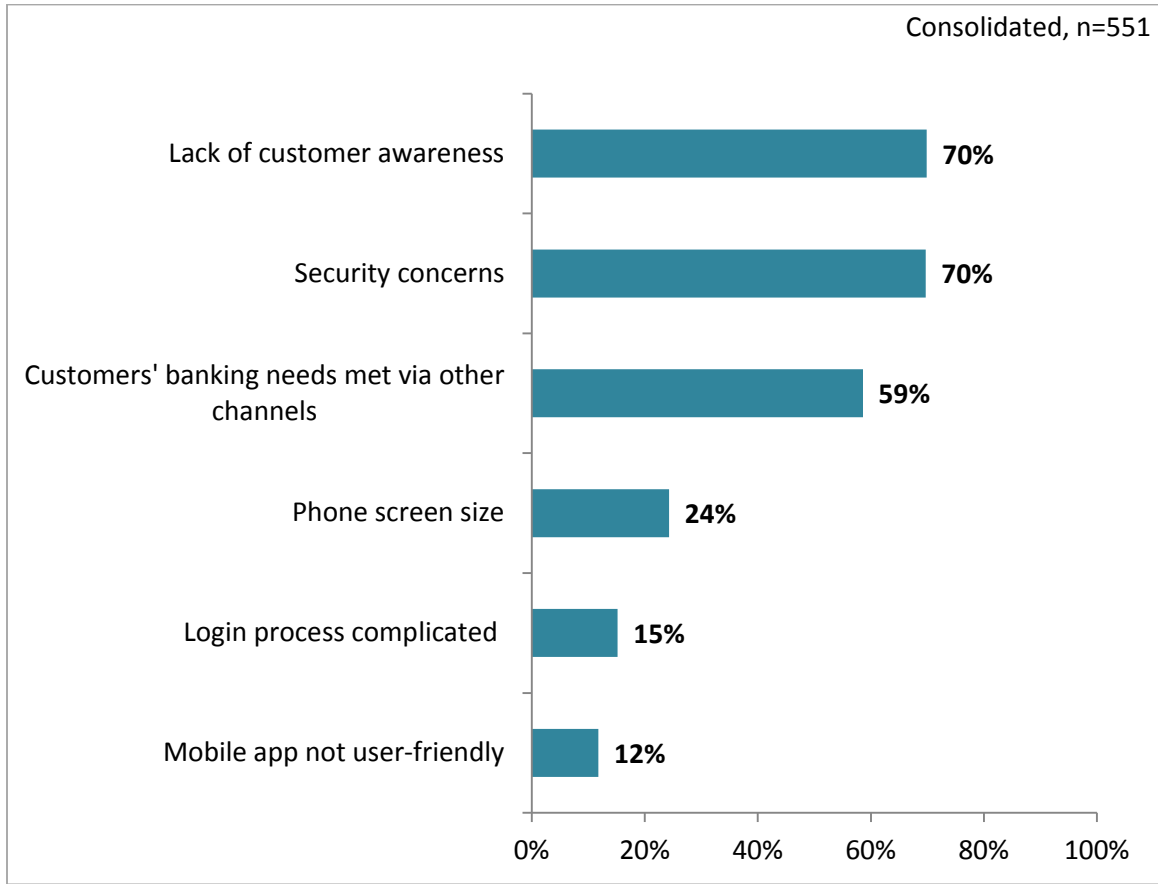
Barriers and Risks to Offering Mobile Banking Services

Seventy percent of FIs perceive the “lack of customer awareness” and “security concerns” as top barriers to broader adoption of mobile banking (**Figure 30**). The results are consistent across districts as well as for banks and credit unions, with a difference of less than three percentage points between bank and credit union responses. Fifty-nine percent of FIs reported “customers” banking needs met through other channels’ as the third highest barrier to customer adoption; and bank responses were eight percentage points greater than those of credit unions. Credit unions as a group had a few more (six percent) issues with the perceived unfriendliness of their mobile apps. These two barriers are complementary. If customers do not recognize or understand the potential value of mobile banking, then they will likely be satisfied with existing options. This is why creating awareness of the value of mobile banking is important to increasing adoption.

According to the FR Board survey, when asked why they did not use mobile banking, 86 percent of consumers said their banking needs were being met through other channels, 73 percent did not see any reason to use it, and 62 percent were concerned about security. The FR Board’s consumer survey results are in line with what FIs’ perceive as barriers to customer adoption.

²⁴ “Community Banks Find Opportunity in Business Mobile,” Robb Gaynor, in BAI Banking Strategies, March 17, 2015

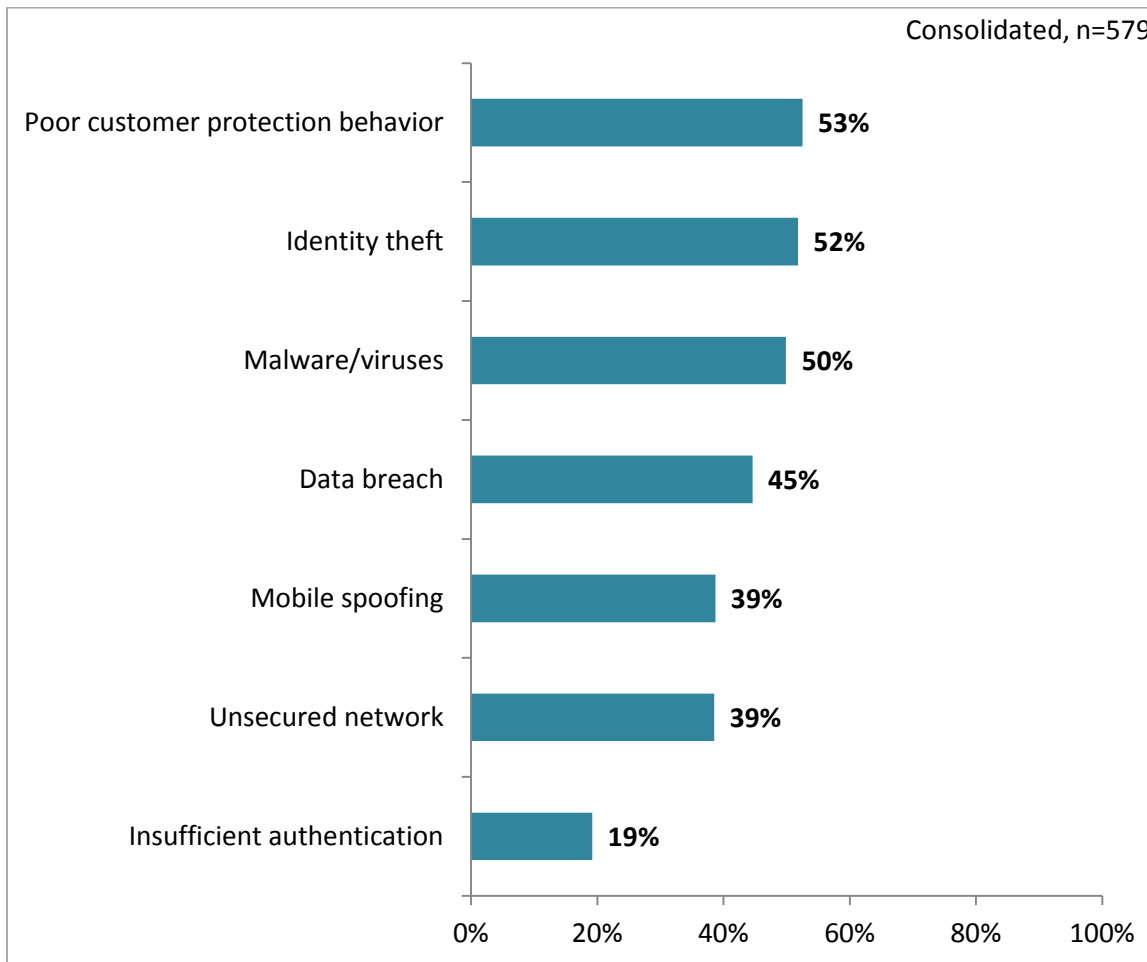
Figure 30: Top Barriers to Mobile Banking Adoption (percent of respondents)



Q25. What are the THREE most common reasons you believe prevent customer adoption of mobile banking?

FIs recognize that their mobile banking solutions must be secure to succeed. When asked about their top three security-related mobile banking concerns, more than half (53 percent) of the FI respondents selected poor customer protection behavior, identity theft, and malware (**Figure 31**). The fact that poor customer protection behavior tops the list of concerns clarifies that institutions believe their customers should share responsibility for good mobile behavior (e.g., use of apps) and protecting the mobile devices that they use to conduct banking (and other payment) transactions. In fact, all three top security issues (as well as mobile spoofing) reflect to a greater or lesser extent on customer behavior. Although there is no supporting data in the survey, it is likely that the high percentage of respondents concerned with data breach (45 percent) is more indicative of data breach as a cause of the problem rather than the mobile channel. Unsecured networks are an issue for more than one-third of respondents, and the lowest percentage of FIs (19 percent) cited insufficient authentication as a top concern, perhaps because most FIs apply multi-factor authentication (MFA) for their online and mobile banking services.

Figure 31: Top Three Mobile Banking Security Issues (percent of respondents)

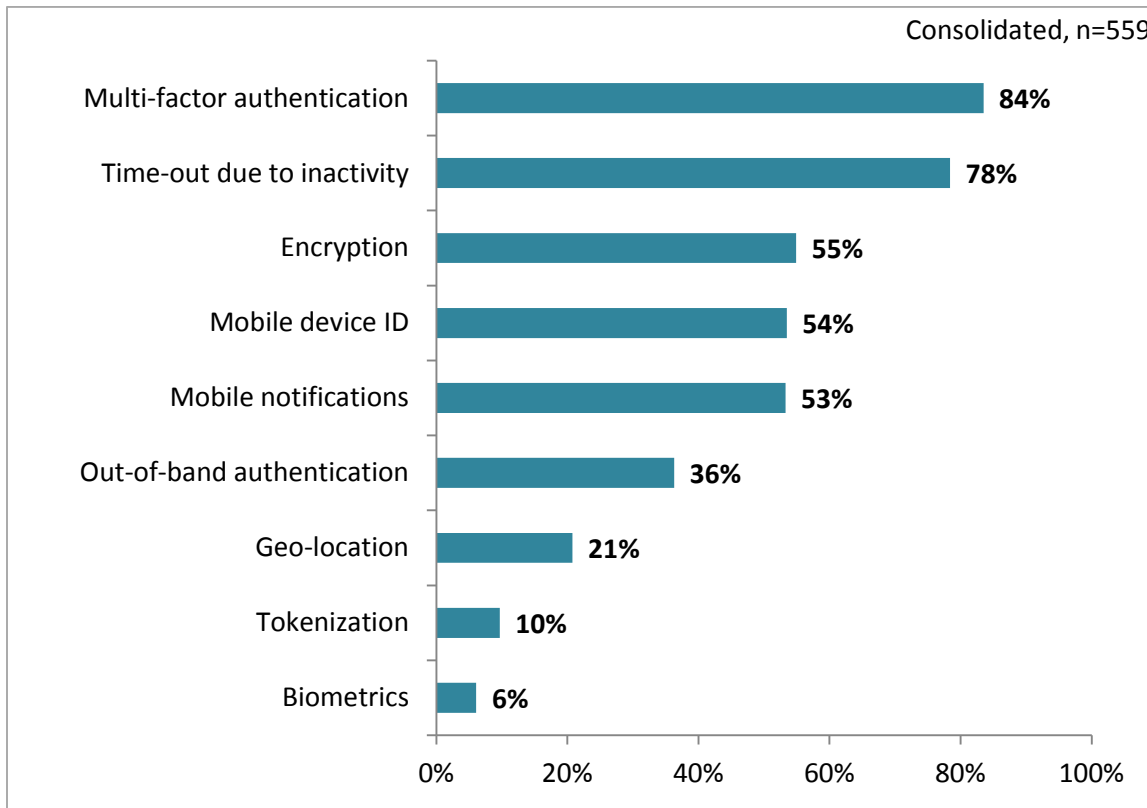


Q19. Please select your FI's TOP THREE security-related issues or concerns associated with mobile banking.

FIs use multiple tools and methods to enhance mobile banking security. Nearly all FIs use MFA, and more than three-quarters (78 percent) have implemented a time-out feature for inactivity. Over half of respondents encrypt data being transmitted and verify the mobile device ID. Geo-location, tokenization, and biometrics (e.g., using fingerprints to authenticate a mobile device owner) are newer tools, but their use is growing as FIs and other industry stakeholders seek additional options to protect customer payment credentials and enhance authentication (**Figure 32**).

Geo-location, which tracks the location of a mobile device, can be used to confirm that a mobile device is being used within the typical geographic range of the owner; “out-of-pattern” use might trigger an FI to flag the activity or transaction for additional follow-up. Use of tokenization and biometrics is low but adoption of these security tools should grow over the next few years for mobile banking and payment activities. Implementation of the Apple Pay mobile wallet, which uses tokenization and (fingerprint) biometrics for authentication, as well as similar solutions in development for Android phones, is anticipated to accelerate adoption of these technologies.

Figure 32: Methods Used by FIs to Enhance Security (percent of respondents)



Q20. Which of the following does your FI currently use or plan to use to enhance mobile security? (Check ALL that apply)

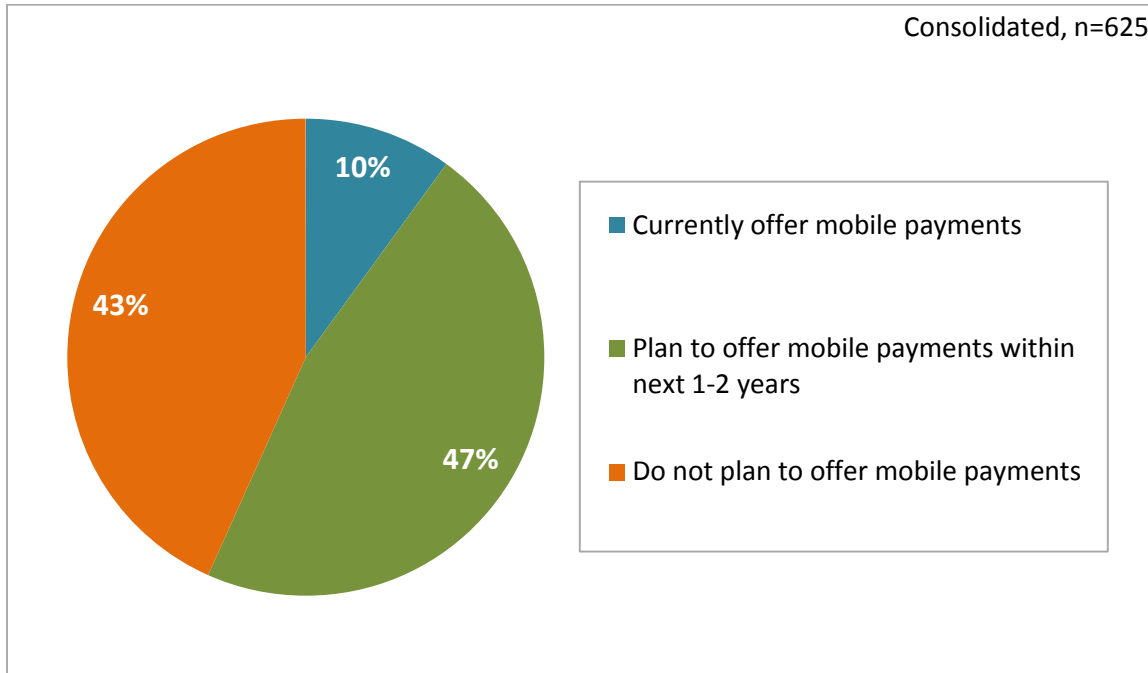
VII. Mobile Payment Results

Now that many FIs have fully implemented mobile banking, they need to concentrate on increasing mobile banking adoption and building a mobile payments strategy. If the percentage of FIs currently offering mobile payments (10 percent) is combined with FIs planning to offer mobile payments in the next 1-2 years (47 percent) the results are promising. Nearly 60 percent of FIs should be offering mobile payment services by the end of 2016 (**Figures 33 and 34**). (Among New England FIs this percentage rose from 39 percent in 2013 to 58 percent in 2014.)

It is possible that the 43 percent of FIs not planning to offer mobile payments may change within the next two years – as was evident from the New England district’s experience. Findings from the earlier New England surveys indicate that FIs change their strategies for a variety of reasons and find themselves offering mobile services when they originally had no plans to do so.

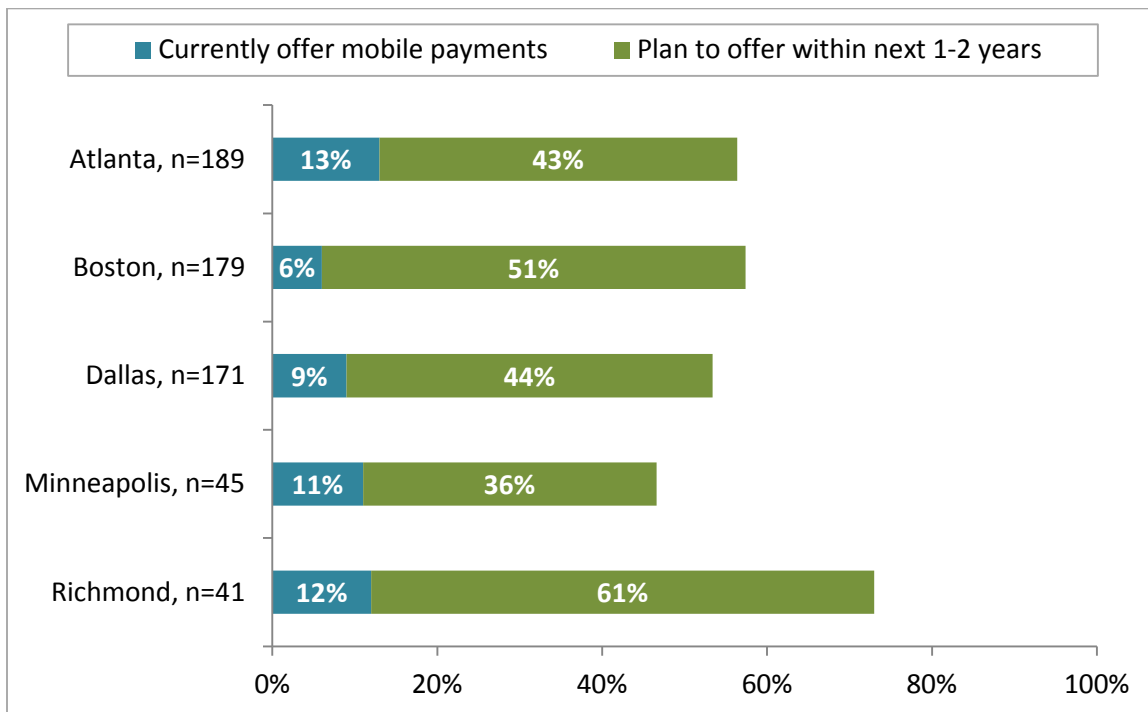
It should be noted that this survey was conducted between July and August 2014, two months before the Apple Pay mobile wallet was launched. Many respondents were unaware of Apple Pay and answered questions with only the information available to them at that time. Apple Pay is bank-centric, implemented with each FI individually. Given the broad interest from institutions of all sizes in Apple Pay since its launch, it is conceivable that some of the “no plans to offer” FIs might have responded differently had they been aware of what Apple proposed.

Figure 33: Status of FIs Offering Mobile Payments Services (percent of respondents)



Q31. Do you (plan to) offer mobile payment services to your customers? (Check ONE)

Figure 34: Status of FIs Offering Mobile Payments Services by Districts (percent of respondents)

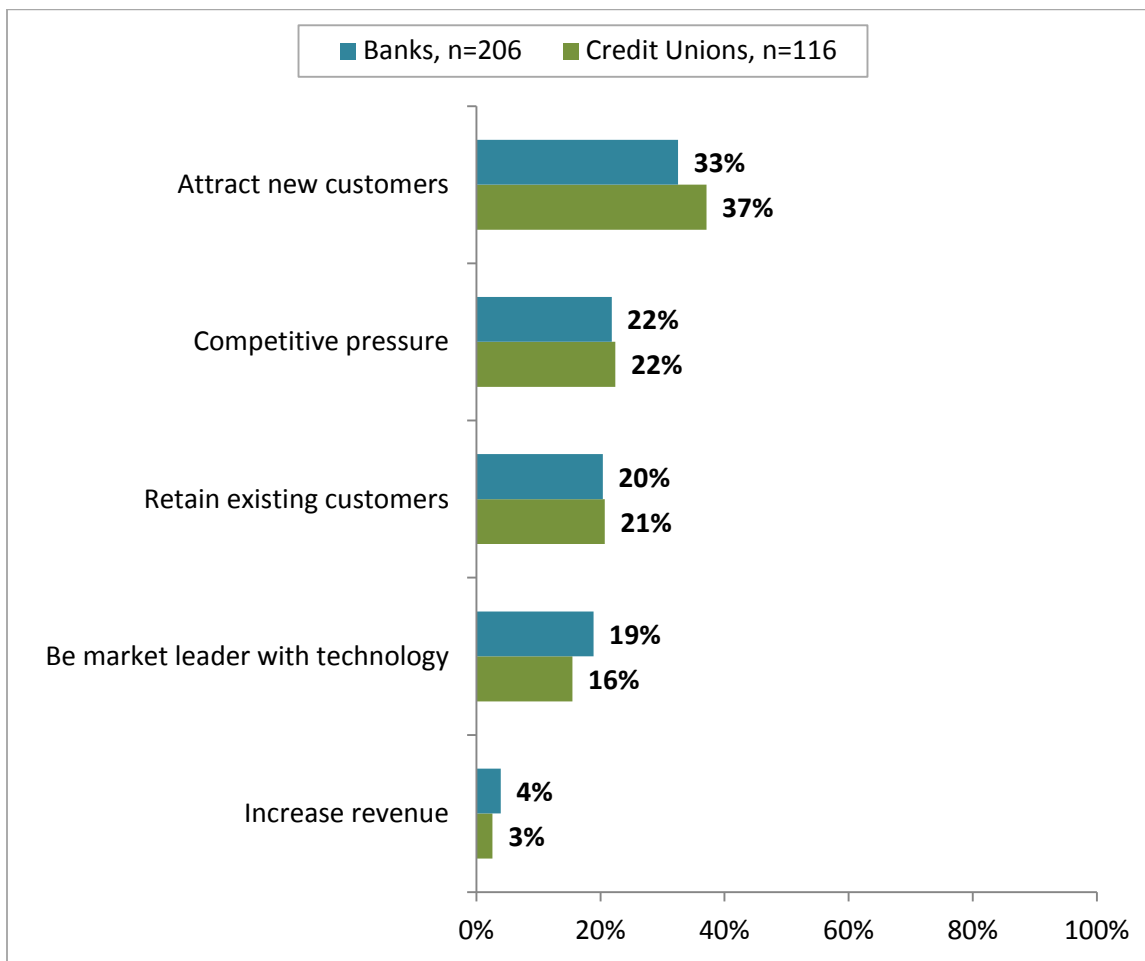


Q31. Do you (plan to) offer mobile payment services to your customers? (Check ONE)

Leveraging their mobile banking experiences, FIs can focus on building a mobile payments strategy to increase their customer base. The survey results show that 322 FIs – both banks and credit unions – give more weight to attracting new customers than to retaining existing customers when planning to offer mobile payments (**Figure 35**). Thirty-three percent of the banks and 37 percent of the credit unions chose “attract new customers” as their primary reason for offering or planning to offer mobile payments.

Banks and credit unions were equally split between competitive pressure and customer retention as important reasons to offer mobile payments. Banks were somewhat more interested than credit unions in being perceived as technology leaders. Increasing revenue through mobile payment was a compelling driver for just a handful of bank and credit union respondents.

Figure 35: Primary Reason FIs Offer Mobile Payments (percent of respondents)



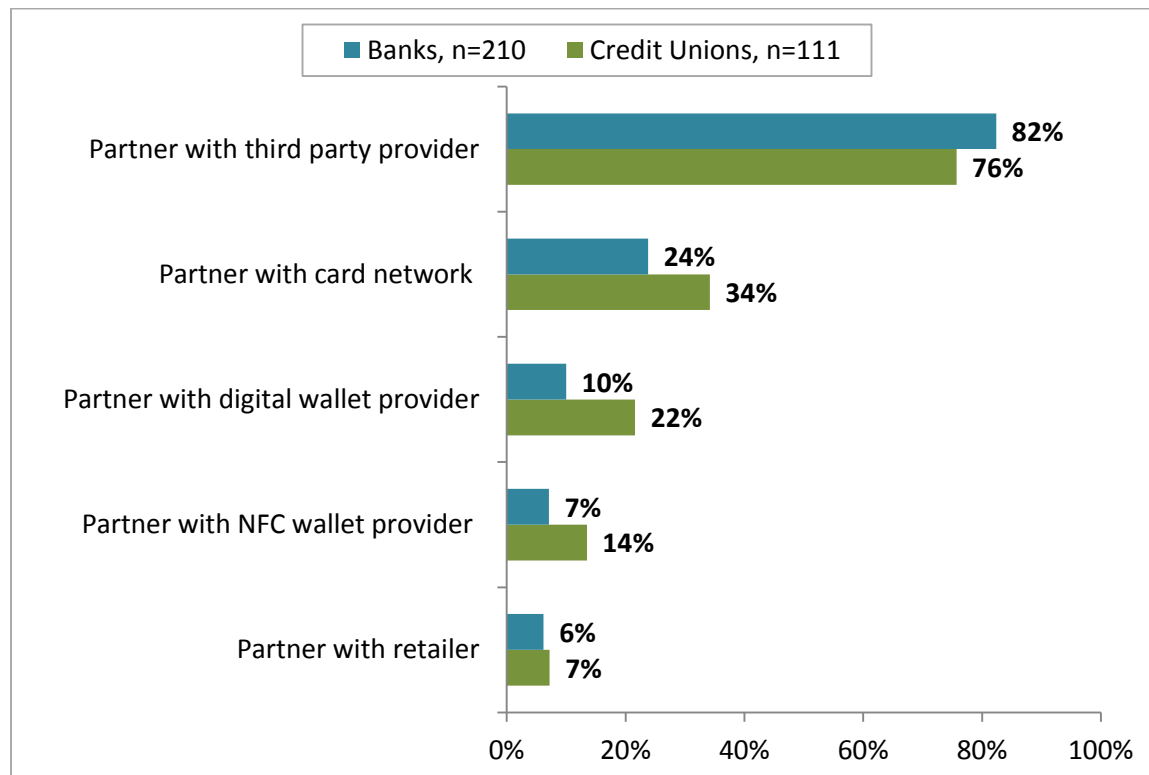
Q34. If you (plan to) offer mobile payment services, what is your primary business reason? (Check only ONE)

Partnering is very much the go-to-market strategy. While leveraging their own strengths in risk management and customer service, FIs in general recognize the need to collaborate with other businesses

that may have more knowledge and expertise in certain areas in order to get to market more quickly or to have access to a larger population of potential customers. The mobile payments strategy for respondent banks and credit unions is consistent – both ranked responses in the same order, with only slightly different percentages (**Figure 36**).

Partnering with third party providers was selected by most FIs (82 percent of banks and 76 percent of credit unions). Working with card networks (e.g., MasterCard, Visa, American Express, or Discover) was the second highest choice, but selected by a much lower percentage of FIs (24 percent of banks and 34 percent of credit unions). Interestingly, partnering with a retailer was the least-selected option (six percent of banks and seven percent of credit unions) – which may change when the MCX merchant consortium launches its CurrentC mobile wallet in late 2015. Partnering with any wallet provider, whether digital or NFC, was not given much weight, but as noted earlier, the survey was conducted prior to the Apple Pay launch (for iOS) and the Samsung Pay announcement (for Android). Overall, banks were more likely to be interested in partnering with a third party provider (most generically), while credit unions have given more thought to particular types of partnerships.

Figure 36: FIs’ Strategies for Offering Mobile Payments (percent of respondents)

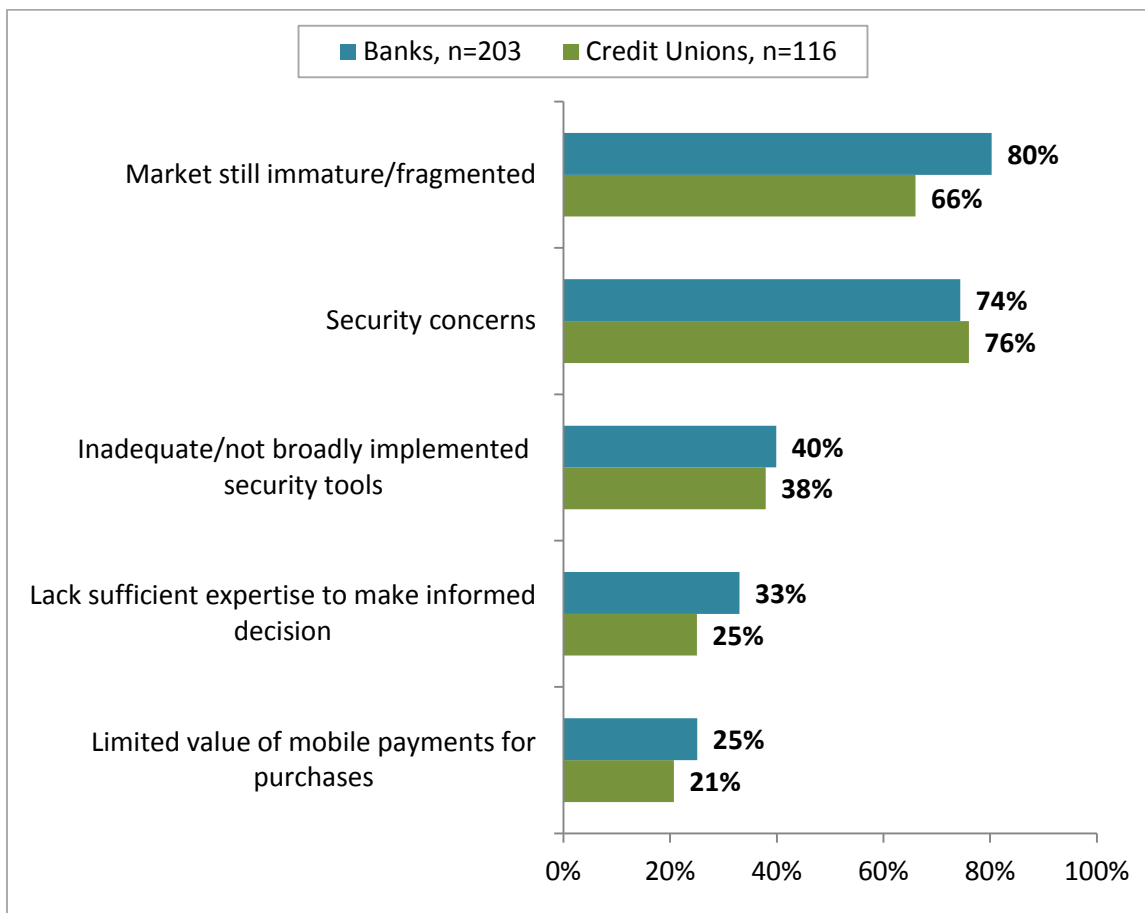


Q32. How do you (plan to) offer mobile payment services? (Check ALL that apply)

Drilling down into the mobile payment business model strategies, respondents were asked to rank the importance of five mobile payment strategies. The largest percentage (41 percent) of the 281 respondents ranked “partner with white label mobile wallet provider” as most important. This clearly indicates that FIs would prefer to use their own brand for the mobile wallet to maintain connections to their customers. “Linking to a mobile NFC solution provider” was selected as the second most important strategy; partnering with merchants ranked third; and offering a mobile payment app using a QR code was fourth. The mobile wallet market is evolving rapidly with several wallet solutions under development. This is an area each FI needs to follow closely in order to make the best informed decision for its organization.

The top barriers that FIs must address when implementing mobile payments continue to be market immaturity/fragmentation and security (Figure 37). Market issues edged out security for banks (80 percent to 74 percent) while more credit unions selected security over market fragmentation (76 percent to 66 percent). Market fragmentation makes it difficult for institutions and other stakeholders, including merchants, to know which solutions will appeal to a large number of consumers and be sustainable over the longer term. At the same time, security concerns must be addressed with proper tools and education. As more FIs and mobile solution providers collaborate on a few common mobile platforms, the market may see a decline in fragmentation over the next couple of years. The low percentage of banks and credit unions that selected “limited value of mobile payments for purchases” is an indication that industry stakeholders – FIs in particular – are starting to recognize the value of mobile payments as long as barriers can be overcome to encourage customer demand.

Figure 37: FIs’ Perceived Barriers to Offering Mobile Payments (percent of respondents)



Q35. Which barriers do you see to offering mobile payments for purchases? (Check ALL that apply)

Finally, there were 231 FI respondents that reported no plans to offer mobile payment services. They were asked to explain what influenced their decision by ranking the importance of eight reasons. Seventy-seven percent of the 231 respondents selected “security concerns” as most or very important. This concern emphasizes the importance of having strong security tools to influence FIs’ decisions about offering mobile payments. Sixty-seven percent of respondents selected “lack of customer demand” as one of the three most important reasons not to offer mobile payment services. Being able to provide consumers with a strong value proposition to build demand may also motivate FIs to offer mobile payments. Other factors including “regulatory issues,” “limited value or benefit,” “lack of standards/interoperability,” “ROI,” and “poor cellphone coverage” were all considered less important.

VIII. Conclusions and Recommendations

Conclusions

Mobile phones, and now tablets, are an essential part of daily life for most Americans. With smartphone usage on the rise and a plethora of mobile apps, consumers and businesses are using mobile devices in new and innovative ways. There is already a dynamic competitive environment for mobile banking, which is clearly demonstrated by this survey’s findings. Most financial institutions recognize that the market expects them to offer mobile banking services. In fact, an institution is conspicuous if it does not offer mobile banking services, and is at risk of losing customers and cross-selling opportunities if it does not have a clear mobile banking strategy.

The survey findings indicate that mobile banking is important to customer retention and acquisition goals, despite the fact that it is a free service at virtually all respondent institutions. The survey also underscores that the breadth and depth of mobile banking offerings as well as customer adoption rise with an institution’s comfort level and experience with mobile technologies. There continue to be avenues for growth and change, however. A prime example is that FIs are still offering the same suite of mobile banking products to retail and business customers, rather than differentiating to meet the unique needs of businesses. Additionally, more advanced services like mRDC, mobile P2P payments, and personal financial management, as well as the less traditional “niche” services mentioned in this report, are ready for further development to expand adoption. The FRBB-NEACH survey clarified that there was a robust upsurge in customer – particularly, consumer – adoption of mobile banking services between 2013 and 2014.

Differentiation can make an impact, and, at least short-term, advantage may accrue to those institutions leading with advanced mobile capabilities. Smaller FIs can learn from larger FIs and non-bank competitors which have successfully piloted new mobile banking services. Ongoing market barriers, including low customer demand, security gaps, and to a much lesser extent standards, pose challenges to greater implementation and adoption.

Offering mobile payments remains a future capability, although the survey findings reveal that payment services are now clearly on the horizon. Survey respondents are assessing their options, while innovative players evolve the market and develop alternatives. Not surprisingly, the mobile payments go-to-market strategy for mid-sized and smaller institutions, in particular, revolves around partnering. No single institution has the market power to develop and succeed with its own proprietary solution today. FIs will need to build mobile payment systems that are interoperable and work with common standards. This is why partnership is important.

Announced after this survey, Apple Pay may accelerate FI implementation of mobile payment services. Banking executives unfamiliar with NFC 18 months ago are now closely watching how mobile payments are taking shape at the point-of-sale. These findings indicate, and the FRBB-NEACH survey underscores, that the pace of change in mobile banking and payments is accelerating. Financial institutions are central to this process.

There are several observations about the districts to consider when assessing the survey findings, although none materially alters the following conclusions. Asset size is clearly important. If there had been greater participation by large institutions – which have the resources to innovate and lead the market – in the survey, results may have shown a more robust picture of the landscape, and a greater emphasis on new services, delivery and usage. It is uncertain whether the type of financial institution made a difference, e.g., would a larger credit union representation have changed the results, as there were very few differences in the findings. The smaller respondent pools in two districts should be viewed with a somewhat different lens: results might have been sufficiently different (and comparable to other districts) had more institutions participated.

Geography does not seem to be a consideration. The number and type of FI respondents appear attributable to how and by whom the survey was distributed, not by any characteristic of a given region of the country. Atlanta, Boston, and Dallas, as well as Richmond, with a lower response rate, appear to be on the same trajectory with a majority of respondents that have offered mobile banking services for more than a year.

Recommendations

Individual financial institutions must, at a minimum, keep pace with the market. Falling too far behind the curve is dangerous. With the exception of technology companies, mobile is not an area where late entrants can leapfrog the market. Certainly, banks and credit unions benefit from experience and an understanding of how their services are being perceived and used by their customers, which develops over time.

FIs can use the findings from this survey to determine how their services compare to the consolidated findings generally, and against other institutions in their region. The data clarifies areas of parity and potential opportunity – identifying those mobile banking services that are baseline, those that are poised for growth, just emerging, or still immature. Although the survey does not identify best practices, it does provide information that can be used to benchmark performance in the context of common practices.

Business-centric services are still nascent and new functionality should be offered to meet their needs for new or more tailored services and banking capabilities on mobile devices.

Delivering services via different form factors is important. To date, developing mobile payment-specific services has been the province of big banks and non-bank competitors. (Closed-loop mobile payment systems like Starbucks' have been singularly successful). As the market develops, particularly in the payments arena, the focus must evolve from "same as online" to "mobile only" – and FIs should be aware of these developments. One example would be to make use of geo-location services to highlight the ATM and branch location most relevant to customers, based on the customer's location.

FIs should hone their marketing efforts. The FRBB-NEACH surveys evidence a change in marketing strategy from soft launch, to traditional marketing (e.g., statement stuffers), to aggressive marketing via mainstream media channels and "banner marketing" on other websites. This survey illustrates a focus on more internal marketing (e.g., FI website) and use of social media. FIs can learn from peers and other competitors which have created compelling messages for specific mobile banking use cases, and have reached younger consumer cohorts via social media.

Last but not least, more institutions are and should be assessing their options for mobile payment services for the following reasons:

- Many consumers already use their mobile phones to shop online and while mobile payments are a small percentage (about 15 percent) of total U.S. retail e-commerce sales, this is expected to grow.

- As mobile banking becomes a mainstream service, customers expect FIs to provide them with mobile payment solutions as a next step.
- FIs are well-suited to provide mobile payment solutions and digital wallets. They can bring their trusted services and expertise in risk management and customer service to the equation and work with the technology providers to create partnerships.
- Banks can lend their strong capabilities to the security/regulatory requirements of mobile payment solutions and promote wider acceptance with retailers.

FIs should not sit on the sidelines for mobile payments while start-ups and large technology providers move forward with their own payment solutions. Instead of waiting for the perfect solution or winners to see which efforts will gain traction, it is important to be proactive and help make the best solutions succeed. FIs will need to investigate alternatives thoroughly to consider consumer convenience and value as well as security, and assess where market successes lie prior to investing in mobile payment services.



Appendix

2014 Federal Reserve Mobile Banking and Payments Survey – Questionnaire

Please complete this online survey to help us better understand your organization's mobile banking and payments initiatives and service offerings. Your information is very important. It will enable us to give you a detailed description of mobile banking and payments activities within our regional financial institutions.

Survey Instructions:

This survey contains **FIVE** sections.

Sections **1** and **2** are **REQUIRED** for all respondents.

For sections **3**, **4** and **5**, please follow instructions within the sections.

If more than one person from the same financial institution receives this survey, please consolidate your responses into a single survey.

Thank you for completing this survey.

Section 1: Respondent Profile

- 1. Financial institution name*: _____
- 2. ABA number*: _____
- 3. Contact name: _____
- 4. Contact title: _____
- 5. Functional area of contact (e.g., business line, operations, etc.): _____
- 6. Email**: _____

*Required fields

** If you would like to receive an electronic copy of the survey results report, please provide an email address.

Section 2: Demographics

- 7. Corporate address:
Address line 1: _____
Address line 2: _____
City/town: _____
State: _____
ZIP: _____

- 8. What is your FI's asset size?
 - < \$100 million
 - \$100-\$500 million
 - \$500 million to \$1 billion
 - > \$1 billion

- 9. Please indicate your financial institution type:
 - Commercial bank
 - Credit union
 - Savings bank
 - Cooperative or mutual bank
 - Other (please specify): _____

- 10. Please indicate to whom you provide services. (Check ALL that apply)
 - Consumers
 - Corporate/commercial entities
 - Small businesses
 - Other: (please specify) _____

Section 3: Mobile Banking

Please refer to the definition below for questions in the MOBILE BANKING Section:

Mobile banking uses a mobile phone to connect to a financial institution to access bank/credit account information, e.g., view balances, transfer funds between accounts, pay bills, receive account alerts, locate ATMs, deposit checks.

11. When did you start offering mobile banking to your customers? (Check ONE)

- Within the past year
- More than one year ago
- Currently not offering mobile banking, but plan to offer within next 1-2 years
- Do not plan to offer mobile banking [If respondent chooses this option, goes directly to Question 30]

12. What mobile banking technology platform do you use or plan to use in the future? (Check ALL that apply)

- "Triple Play" (text, web, app)
- Downloadable mobile app
- Website formatted for mobile access
- SMS text messaging
- Other (please specify): _____

13. Which mobile operating system does your mobile banking application support? (Check ALL that apply)

- Apple iOS
- Google Android
- Microsoft Windows Phone
- Blackberry
- Other: (please specify) _____

14. Do you offer mobile services via a tablet or similar device? (Check ALL that apply)

- iPad
- Android
- Kindle
- Other (please specify): _____

15. What company provides your mobile banking system?

- FIS
- Fiserv
- Jack Henry
- Monitise
- In-house system
- Other: (please specify) _____

16. Which of the following **mobile banking services** do you currently offer or plan to offer?

Mobile Banking Feature	Currently offer	Plan to offer	No plan to offer
Check balances (DDA, Savings)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
View statements and transaction history (DDA, Savings)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
View credit card balances, statements and transaction history	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
View prepaid account balances	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Bill payment	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Bill presentment	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Transfer funds between same owner's accounts within same FI	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Transfer funds between same owner's accounts at different FIs	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Mobile person-to-person money transfer	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Mobile remote deposit capture	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
ATM/branch locator	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Personal Financial Management	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Access to brokerage services	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Prepaid debit card or account	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
International remittances	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

17. Do you offer the following features? (Check ALL that apply)

- Bilingual mobile website or app
- Enroll for mobile banking using a mobile device (mobile enrollment)
- Open accounts over mobile device
- Single login/authentication credentials for online and mobile services
- Mobile banking products for the underbanked

18. What types of mobile alerts does your FI offer? (Check ALL that apply)

- Insufficient funds
- Credit card balance close to or over limit
- Funds transfer completed
- Merchant bill pay
- Low balance
- Two-way actionable text alerts (e.g., FI sends customer insufficient funds text alert, customer replies by text to schedule transfer).
- Other: (please specify) _____

19. Please select your FI's **TOP THREE** security issues associated with mobile banking. (Check THREE only)

- Data breach
- Identity theft
- Insufficient authentication
- Malware/viruses (e.g., customer downloads an infected mobile banking app from app store)
- Mobile spoofing*
- Use of unsecured network (e.g., customer accesses open WiFi network)
- Inadequate customer protection behavior (e.g. no mobile password, lost phone)
- Other: (please specify) _____

***Mobile spoofing** is misrepresentation or stealing of legitimate brand through:

- Fraudulent messages (email, SMS or phone call) pretending to be from legitimate sender
- Counterfeit screen inserted on legitimate website that requests personal information to steal user information
- Criminal use of a brand to make mobile app look like it came from a legitimate FI

20. Which of the following does your FI use to enhance mobile security? (Check ALL that apply)

- Biometrics (fingerprint, facial or voice recognition, etc.)
- Encryption
- Geo-location
- Mobile device ID
- Mobile notifications (e.g., SMS text message, push notifications)
- Multi-factor authentication
- Time-out due to inactivity
- Tokenization
- Other: (please specify)

21. Please select your **primary** business reason for offering mobile banking. (Check only ONE)

- Retain existing customers
- Attract new customers
- Be market leader with technology
- Competitive pressure
- Increase revenue
- Other: (please specify)_____

22. What business benefits have you achieved since offering mobile banking? (Check ALL that apply)

- Reduced operational costs
- Improved efficiency
- Customer retention
- Increased transaction volume
- Other: _____

23. How do you (plan to) market your mobile banking services? (Check ALL that apply)

- Direct mail/statement stuffers
- Radio, TV, print ads
- Branch signage and brochures
- Email or phone calls to existing customers
- Promote on your own website
- Social media marketing (e.g., Facebook, Twitter)
- Banner ads on other mobile apps or websites
- Other: (please specify): _____

24. What percentage of your retail customers has used your mobile banking services?

% of retail customers who ENROLLED in your mobile banking services	% of retail customers who USED mobile banking within the last 90 days
<input type="checkbox"/> <5%	<input type="checkbox"/> <5%
<input type="checkbox"/> 5-20%	<input type="checkbox"/> 5-20%
<input type="checkbox"/> 21-50%	<input type="checkbox"/> 21-50%
<input type="checkbox"/> >50%	<input type="checkbox"/> >50%

25. What are the **THREE** most common reasons preventing greater customer adoption of mobile banking? (Check THREE only)

- App is not user-friendly (slow, performance issues)
- Login process complicated
- Security concerns
- Lack of customer awareness
- Customers feel their banking needs are met through other channels
- Other: (please specify)_____

26. What additional mobile banking services do you offer your commercial customers? (Check ALL that apply)

- Business and commercial firms are offered the same mobile banking services as retail customers
- Check corporate balances and monitor accounts
- Cash management functions
- Administer users and reset passwords
- Mobile card acceptance plug-in reader/mobile POS (e.g., Square)
- Other: (please specify) _____

27. What percentage of your commercial customers has used your mobile banking services?

% of commercial customers who ENROLLED in your mobile banking services	% of commercial customers who USED mobile banking within the last 90 days
<input type="checkbox"/> <5%	<input type="checkbox"/> <5%
<input type="checkbox"/> 5-20%	<input type="checkbox"/> 5-20%
<input type="checkbox"/> 21-50%	<input type="checkbox"/> 21-50%
<input type="checkbox"/> >50%	<input type="checkbox"/> >50%

28. Do you (plan to) charge a fee for any mobile banking services?

- Yes [If respondent chooses “Yes,” goes to question 29]
- No

29. Please indicate **ALL** fee-based services. (Check ALL that apply)

- Mobile RDC
- Mobile P2P
- Mobile funds transfer between same customer’s accounts at different FIs
- Commercial/small business customers flat monthly fee for services
- Commercial/small business customers by transaction type or volume
- Other: (please specify) _____

[Only for those who responded “No, Do not plan to offer mobile payment services” in question 11]

30. Please **RANK** the items that influenced your decision not to offer mobile banking services.

- Lack of customer demand
- Security concerns
- Regulatory issues
- Lack of standards and interoperability
- ROI/Lack of business case
- Lack of consistent, reliable cellular coverage
- Other: (please specify) _____

Section 4: Mobile Payments

Please refer to the following definition in the **MOBILE PAYMENTS** Section:

Mobile payment: Use of a mobile phone to pay for purchase at retail point of sale (POS) or food service location, on the Internet for goods and services or digital content, or to pay for transit, parking or other transportation services, ticketing, etc. Payment may be initiated via SMS text message, mobile Internet, downloadable app, contactless near field communication (NFC) and/or quick response (QR) code.

31. Do you (plan to) offer mobile payment services to your customers? (Check ONE)

- Yes, offered within the past year
- Yes, offered more than one year ago
- No, currently not offering mobile payment services, but plan to offer within next 1-2 years
- No, do not plan to offer mobile payment services **[If respondent chooses this option, goes directly to question 36]**

32. How do you (plan to) offer mobile payment services? (Check ALL that apply)

- Partner with a card network (e.g., credit, debit or prepaid)
- Partner with transit authorities
- Partner with a NFC-enabled wallet provider (e.g., Google Wallet, Isis)
- Partner with a digital wallet/mobile solution provider (e.g., PayPal, LevelUp, Paydiant)
- Partner with third party provider (e.g., FIS, Fiserv, Monitise)
- Partner with retailers to offer rewards/coupons
- Develop our own mobile payment solution
- Other: (please specify) _____

33. Please RANK the mobile payment services below based on your perception of the value of offering them as part of your mobile banking app.

- Partner with mobile provider of white label mobile wallet (e.g., Paydiant)
- Link to mobile provider offering NFC contactless solution (e.g., Isis)
- Link to provider for access using QR code (e.g., LevelUp)
- Partner with merchants to allow customers to pay for purchases by transferring money directly from their bank account to the retailer, under bank control (e.g., credit push)
- Other: (please specify) _____

*A **mobile wallet** is a secure container in a mobile phone that stores multiple payment credentials (debit, credit, prepaid cards and bank accounts) and value-added services, such as rewards and loyalty cards that can be securely accessed to manage and initiate payments. Digital wallet stores payment credentials on remote server (i.e., cloud)

34. If you (plan to) offer mobile payments, what is your **primary** business reason? (Check only ONE)

- Attract new customers
- Retain existing customers
- Be market leader with technology
- Competitive pressure
- Increase revenue
- Other: (please specify)_____

35. Which barriers do you see to offering mobile payments for purchases? (Check ALL that apply)

- Security concerns (e.g., data breach, fraud)
- Market still immature and fragmented
- Inadequate or not broadly implemented security tools (e.g., biometrics, geo-location, tokenization)
- Lack sufficient expertise to make informed decision
- Limited value of mobile payments for purchases
- Other: (please specify)_____

[Only for those who responded “No, Do not plan to offer mobile payment services” in Question 31]

36. Please **RANK** the items that influenced your decision not to offer mobile payment services.

- Lack of customer demand
- Limited value or benefit
- Security concerns
- Regulatory issues
- Lack of standards and interoperability
- ROI/Lack of business case
- Lack of consistent, reliable cellular coverage
- Other: (please specify)_____

Section 5: Financial Institution Feedback

37. Please indicate the **first 2-digits** of your ABA number to help us link your response with appropriate Federal Reserve district*:

- 01 or 21
- 05 or 25
- 06 or 26
- 09 or 29
- 11 or 31

[Answer will direct respondent to corresponding District for questions 38 and 39]

[Each District and RPA will be inserted for Q. 38 and Q.39]

38. Do you want the Federal Reserve Bank of **(Atlanta, Boston, Dallas, Minneapolis, or Richmond)** to provide more information about the following services? (Check ALL that apply)

- Mobile contactless NFC payments
- Mobile/digital wallets
- Mobile P2P
- Mobile security
- Mobile banking services for the underserved
- Regulatory updates
- Other: (please specify)_____

39. Please share your ideas on what role(s) the Federal Reserve Bank of **(Atlanta, Boston, Dallas, Minneapolis, or Richmond)** can play in helping to increase your knowledge of mobile banking and payments.
