

2014 ATM SOFTWARE TRENDS & ANALYSIS

7th

EDITION

ATMs and other self-service devices are changing the face of banking. In the seventh edition of the annual survey, learn what the industry thinks about current trends and future expectations of ATM software.

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INTRODUCTION

For the seventh year in a row, ATMmarketplace.com has surveyed individuals in the financial services industry to compile the “ATM Software Trends and Analysis” guide, illustrating ATM trends around the globe. Once again, we look at what’s happening in the world of ATM software and the role ATMs play in serving financial institutions’ (FI) customers. As with previous editions of the guide, the goal for the 2014 edition is to provide a tool FIs can use to map out their plans for the future.

Where appropriate, we compare 2014 survey responses to the 2013 survey to get a sense of how attitudes are shifting. A key difference from 2013 is that, with Microsoft’s end of support for Windows XP on April 8, 2014, 54.1 percent of FIs now regard Windows 7 or 8 migration during 2014 as critical. Nearly half (44.5 percent) of FIs plan to migrate to Windows 7 in 2014.

The 2014 survey found that the top primary driver for changing ATM software is to support Windows 7 or Windows 8, identified by 50.9 percent of FI respondents, followed by improving the customer experience, identified by 35.3 percent of FI respondents.

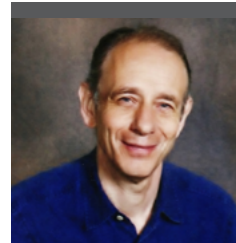
Multivendor software

A third (32.6 percent) of 2014 FI respondents to the question “Which statement best identifies your organization’s ATM software strategy?” said they run multivendor software in a standardized ATM software environment on ATMs from multiple manufacturers. A further 15.6 percent said they run software supplied by their ATM manufacturer but are considering multivendor ATM software.

Just over half (51.4 percent) of 2014 FI respondents identified easier application maintenance and the ability to extend the software to support new features as key benefits of moving to a single ATM software environment.

Self-service

A key theme identified by survey respondents is the need for FIs to add greater functionality to their ATMs. Branch staff then can concentrate on developing profitable relationships with customers.



Robin Arnfield
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More than three-quarters (76.1 percent) of 2014 FI respondents answered “yes” to the question: “Is it a near-term priority for your bank to extend your use of self-service to deliver new or additional products and services?” Nearly three-quarters (70.6 percent) of respondents planning to extend their self-service usage aim to add new transaction types at their ATMs.

“Offering high-quality customer service at ATMs is critical to persuading customers to migrate from human tellers in branches to self-service machines,” a spokesperson for Spain’s CaixaBank said.

The 2014 survey found that 87.9 percent of FI respondents plan to expand their ATM fleet in 2014. Nearly half (48.2 percent) of FI respondents to the question “What are your reasons for deploying new ATMs?” said they want to cut costs by migrating transactions away from tellers. Two-thirds (67.9 percent) said the reason for installing new ATMs is to increase customer reach and coverage, while 62.8 percent want to deploy new functionality to improve the customer experience.

“The challenge is that ATMs are mostly automated cash machines, not automated teller machines,” said Martin Dolan, CEO of Dublin, Ireland-based banking software vendor CR2. “Banks need to put the ‘teller’ into their ATMs. For ATMs to become a bigger player in self-service, they must have a greater capability to offer a wider range of services and transactions.”

An example of a low-cost teller-replacement machine is KAL’s Retail Teller Machine (RTM), which supports a wide range of self-service transactions including cash withdrawal which is carried out by issuing a ticket instead of dispensing cash and then exchanging the ticket for cash in the retail location. The RTM can be also be installed in bank branches and can offer a complete set of teller banking services to complement the services offered by ATMs.

Angel Siorek, Fiserv’s director of channel experience, credit and debit solutions, noted that FIs deploying teller-replacement ATMs will need to carefully consider the additional expense of purchasing and implementing those terminals along with the cost differential from traditional ATMs.

Multichannel integration

With the rapid rise of smartphone and tablet usage, FIs need to work toward offering their customers an omnichannel experience. This will enable customers to initiate transactions such as ATM withdrawals or new account applications on smartphones and complete them at an ATM.

“ATMs will become more functional and move closer to replacing or augmenting tellers in the branch.”

— Raja Bose, Diebold’s vice president of branch transformation and advisory services



Integration with mobile phone transactions was seen as the most important functionality that FIs would like to add to their ATMs, identified by 41.3 percent of respondents in 2014.

According to Ed O'Brien, director of Mercator Advisory Group's banking channels advisory service, omnichannel banking very well may be the catalyst needed to make FIs more customer-centric, more efficient and more profitable.

Marketing

Targeted one-to-one marketing was identified as an important new functionality by 27.5 percent of FI respondents in 2014.

"It's very important for CaixaBank that ATMs become new sources of revenue through the sale of financial products," the CaixaBank spokesperson said. "CaixaBank's Punt Groc (yellow point) ATMs incorporate two screens, allowing products and services to be advertised in one screen, while the other is used for transactions."

However, it's not enough simply to use ATM screens as a delivery vehicle for advertisements. Those messages must be relevant not only to customers' needs but also to their relationship and prior interactions with the FI. As customers interact with FIs on multiple channels, it is important that these channels communicate with one another. For example, if a customer declines an offer on his smartphone, that offer should not be re-presented to him at an ATM.

Videoconferencing

While 17.9 percent of FIs surveyed in 2014 identify remote teller assistance as an important functionality they want to introduce at their ATMs, only 7.3 percent see videoconferencing with bank subject matter experts as an important new functionality. The 2013 survey also identified a low demand for videoconferencing, with only 15.6 percent of FI respondents identifying videoconferencing as an important new functionality.

Raja Bose, Diebold's vice president of branch transformation and advisory services, suggested that banks deploy videoconferencing technology at in-branch kiosks rather than at cash-dispensing ATMs. "Customers won't want to stand in line to withdraw cash at an ATM where someone is videoconferencing with a remote customer service agent," he said.

"Campaigns must be relevant and the look and flow must be convenient, intuitive and fast on the screen. Consumers don't want to wait more than is necessary at ATMs."

— James Trocmé, Citi Global Retail Bank's senior vice president and ATM channel manager



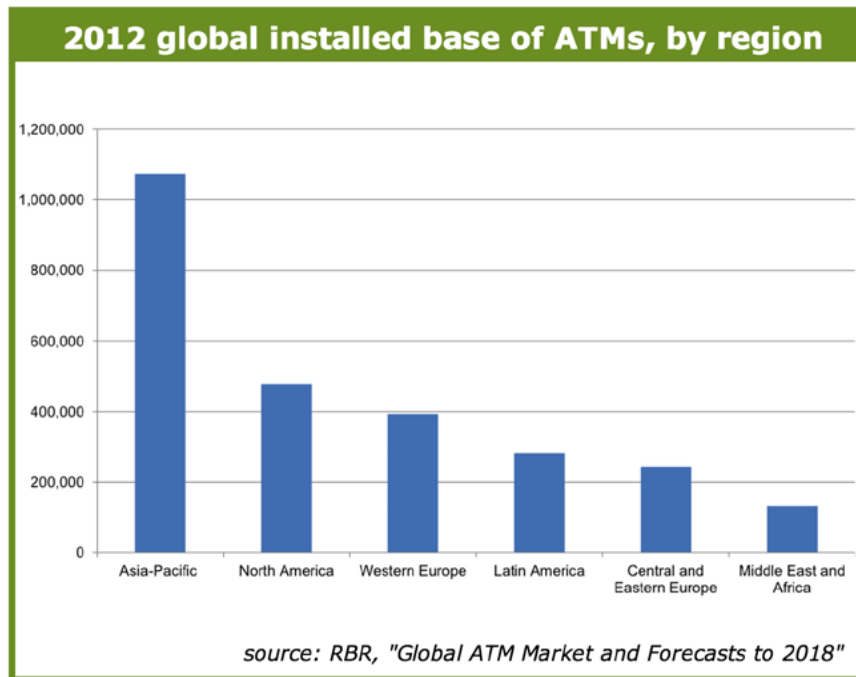
Biometric authentication was seen as an important new functionality by 19.3 percent of FI respondents in 2014, up from 14.7 percent in 2013. Interviews conducted for the 2014 edition of the Software Trends Guide showed keen interest in biometric technology by ATM deployers in emerging markets.


“We feel biometric authentication will mature and be usable earlier than other security technologies,” said Mridul Sharma, executive vice president and head of solution delivery at India’s IndusInd Bank.

The role of the ATM

One issue has become abundantly clear in interviews for the 2014 Guide - despite advances in mobile payments and banking technology, the ATM will continue to play a critical role for the foreseeable future.

Predictions of the demise of cash have proven to be erroneous. In fact, with branch numbers declining, there will be a greater demand for ATMs, particularly multi-function ATMs offering a wide range of services traditionally carried out in branches.





According to U.K.-based consultancy Retail Banking Research, emerging markets such as China and India have seen spectacular growth in ATM deployments in recent years. As more people enter the banking market in those countries, the need for more ATMs will continue.

“Chinese banks are mostly adding new ATMs, although they’re also selecting new sites for underperforming ATMs,” said Zhong Cheng, CTO at China’s Zijin Technology. “As urbanization is rapidly developing in China, there is a huge requirement for banks to provide ATMs in newly established cities.”

CHAPTER 1

ATM Survey Analysis

For the seventh year in succession, ATM Marketplace surveyed ATM executives around the world to learn what trends they see in terms of ATM software, ATM functionality and the role ATMs will play in the future. We also spoke with industry leaders around the globe to gain their insights.

We thank those industry leaders who shared their insights via this survey.

This chapter provides an overview of the responses we received from FIs and from ATM vendors, IADs and service companies. The subsequent chapters look in depth at key topics identified by survey respondents and interviewees.

Appendices 1 and 2 respectively provide detailed analysis of the results from the 2014 FI and non-bank surveys, as well as comparisons with the 2013 surveys.

Financial institutions


Unsurprisingly, due to Microsoft's end of support for Windows XP on April 8, 2014, 54.1 percent of FIs regard Windows 7 or 8 migration during 2014 as critical. The survey also found that 44.5 percent of FI respondents intend to migrate to Windows 7 in 2014.

The top primary driver for changing ATM software is to support Windows 7 or 8, identified by 50.9 percent of FI respondents in 2014, followed by improving the customer experience, identified by 35.3 percent of FI respondents.

A third (32.6 percent) of 2014 FI respondents to the question "Which statement best identifies your organization's ATM software strategy?" run multivendor software in a standardized ATM software environment on ATMs from multiple manufacturers. A further 15.6 percent run software supplied by their ATM manufacturer, but are considering multivendor ATM software.

Just over half (51.4 percent) of 2014 FI respondents identified easier application maintenance and the ability to extend the software to support new features as key benefits of moving to a single ATM software environment.





Over three-quarters (76.1 percent) of 2014 FI respondents answered “yes” to the question: “Is it a near-term priority for your bank to extend your use of self-service to deliver new or additional products and services?” Also, 70.6 percent of FI respondents planning to extend their self-service usage aim to add new transaction types at their ATMs.

The 2014 survey found that 87.9 percent of FI respondents plan to expand their ATM fleet in 2014. Nearly half (48.2 percent) of FI respondents to the question “What are your reasons for deploying new ATMs?” want to cut costs by migrating transactions away from tellers. Two-thirds (67.9 percent) said the reason for installing new ATMs is to increase customer reach and coverage, while 62.8 percent want to deploy new functionality to improve the customer experience.

Integration with mobile phone transactions was seen as the most important functionality FIs would like to add to their ATMs, identified by 41.3 percent of respondents in 2014.

Targeted one-to-one marketing was identified as an important new functionality by 27.5 percent of FI respondents in 2014.

While 17.9 percent of FIs surveyed in 2014 identify remote teller assistance as an important functionality they want to introduce at their ATMs, just 7.3 percent see videoconferencing with bank experts as an important new functionality.

Nearly half (48.4 percent) of 2014 FI respondents have branch of the future activities.


Vendors/IADs/service companies

Asked about the most critical changes they anticipate their customers wanting to make to their ATM fleets in 2014, 36.4 percent of 2014 non-bank respondents identified supporting Windows 7 or 8 as the most critical change. Creating a better customer experience at the ATM is the second most critical change, identified by 35.3 percent of non-FI respondents, followed by the adoption of enhanced security technologies, identified by 33.7 percent.

Integration with other self-service channels was identified as a critical change by 28.3 percent of non-bank respondents in 2014.

Only 26.2 percent of non-FI respondents intend to migrate to Windows 7 in 2014, while 26.7 percent will remain with XP for the foreseeable future.

Increasing security through the use of EMV, 3DES, remote keys and biometrics topped the list of drivers for changing ATM software in 2014, ac-



ording to 38 percent of non-FI respondents. Reducing costs by improving operational efficiency came in second, identified by 37.4 percent of respondents, followed by better integration of ATMs with other banking channels, identified by 33.2 percent.

Integration of the ATM with mobile phone transactions was identified by 48.7 percent of 2014 non-bank respondents as the most important future ATM capability that would improve the customer's experience. Contactless card support came second, identified by 26.7 percent of respondents.

Half (50.3 percent) of 2014 non-bank respondents identified easier application maintenance and extension as a key benefit of moving to a single ATM software environment. The ability to extend functionality quickly at a lower cost was identified as a key benefit by 38.5 percent of respondents.

CHAPTER 2

Windows 7 Migration

On April 8, 2014, Microsoft stopped providing updates for Windows XP, although it will continue to supply its Malicious Software Removal Tool to Windows XP users until July 14, 2015.

After April 8, 2014, ATMs that have not been migrated to Windows 7 will not receive Microsoft security patches. Consequently, they will face greater security risks from malware and network intrusions and will be in breach of the Payment Card Industry Data Security Standard (PCI DSS), which requires ATM deployers to keep their operating systems updated with security patches that protect against known vulnerabilities.

“ATM deployers failing to migrate to Windows XP after April 8, 2014, run the risk of serious fines for non-PCI compliance,” said Aravinda Korala, KAL’s CEO. “Also, Windows 7 migration is very important in regions such as Europe and Asia that have migrated their ATMs to EMV. ATM deployers who have deployed EMV but have failed to upgrade their ATMs to Windows 7 by April 8, 2014, will lose their EMV kernel certification.”

Another motivation to switch is lower maintenance costs, according to the ATM Marketplace report “[Windows 7 ATM Migration Guide](#).” As ATM vendors migrate their technology to Windows 7, XP-based resources will become increasingly scarce and therefore more expensive.

Migrating older ATMs to Windows 7 will require memory and processor upgrades and, in some cases, complete overhauls.

“ATM deployers migrating to Windows 7 need to evaluate their ATMs’ hardware resources,” said Vadil Galiulin, business development manager of bank cards at Kazakhstan-based Corporate Business Systems. “A lot of ATMs don’t have enough memory and processor speed for Windows 7.”

Benefits of Windows 7 for ATMs

Migrating to Windows 7 has several benefits, according to the “Windows 7 ATM Migration Guide.”

Windows 7 is able to provide a more sophisticated user interface, which enables ATMs to support the latest touchscreen technology and tablet inter-



“ATM deployers failing to migrate to Windows XP after April 8, 2014, run the risk of serious fines for non-PCI compliance”

— Aravinda Korala, CEO of KAL

actions, such as screen swiping and zooming. Early adopters of Windows 7 may be able to differentiate themselves immediately from competitors whose ATMs still use XP.

“ATM deployers need to take advantage of the technology available in Windows 7 to implement innovative touchscreens for their ATMs,” said CR2’s Dolan.

NCR’s Johnston also predicts that, thanks to Windows 7, the industry will see the mass adoption of touchscreens.

Windows 7 has several built-in features that make it more secure than XP such as technologies like AppLocker. Also, Microsoft will continue to publish updates and patches to Windows 7.

FIs that have migrated their back-office PCs to Windows 7 will realize greater efficiencies by having their ATM fleets running the same operating system.

Best practices

“The only thing to say about Windows 7 migration is: ‘just do it,’” said Devon Watson, Diebold’s vice president of new business and solution incubation. “Upgrading to Windows 7 is best practice, and the benefit will be advances in performance and security.”

Nevertheless, a large number of ATM deployers will decide to take the risk of not migrating to Windows 7. “In 2015, over half the world’s ATMs will be running Windows 7,” Johnston said. “But 25 to 30 percent of ATMs worldwide will never migrate to Windows 7.”

Microsoft will provide extended custom technical support contracts, called Custom Support Agreements (CSA), to organizations continuing to run Windows XP after April 8, 2014. But the cost of that support will be so high that it will be more cost-effective for ATM deployers to migrate to Windows 7 than to pay Microsoft for security patches for their XP-based ATMs.

Several ATM vendors offer security technologies to help mitigate the risks faced by ATM deployers that haven’t completed their Windows 7 migration. Those technologies employ whitelisting security software, which allows only explicitly identified software code to run on ATMs. Any malicious software, including attacks exploiting new vulnerabilities in XP, is prevented from running.

KAL offers the Kalignite SRP (Software Restriction Policies) Anti-virus system alongside a highly-effective ATM lockdown process as a compre-



hensive solution for ATM security. Wincor Nixdorf also offers a protection system for Windows XP users.

“If banks are still using Windows XP, they won’t be PCI compliant unless they can prove they’re running an end-to-end protection system such as Wincor Nixdorf’s PC/E Terminal Security system,” said Michael Engel, Wincor Nixdorf’s director of banking software. “This means they can run PC/E and wait until their ATMs have reached the end of their life before upgrading their hardware and software to Windows 7.”

Strategy for migration

While recognizing the need to migrate to Windows 7, several banks interviewed for the 2014 Guide said they do not want to rush the migration process.

Bank of Chongqing plans to complete its Windows 7 migration over the next five years, said Li Shuang, project manager at the Chinese bank. New Zealand-based Kiwibank also is planning a gradual upgrade of its ATM fleet to Windows 7, according to Mandy Smith, head of the bank’s agency services.

Italy’s UniCredit aims to conclude its Windows 7 migration in 2016 while Spain’s Bankia expects to begin its migration by early 2015.

“In accordance with our lifecycle strategy and our multiyear replacement plan, we will smoothly migrate our ATMs meeting the necessary hardware requirements to Windows 7,” said Mattia Ghidoni, UniCredit’s vice president, head of cards client support and fraud manager.

Russia’s Alfa Bank does not plan to carry out a rapid migration to Windows 7, said Maxim Daryoshin, head of self-service systems development department. “We will do it during our ATM network modernization.”


However, other banks said they aim to complete their Windows 7 migration in 2014. For example, PNC Bank plans to move to Windows 7 in the second half of the year, said Ken Justice, senior vice president/ATM executive at the U.S.-based bank.

Rapid migrations also are occurring across the globe.

“Maintaining a high standard of security is critical for ING Bank Turkey,” said Alper Özertürk, the bank’s IT product manager. “So our biggest project is to move to Windows 7 in 2014.”

Ceska Sporitelna, a Czech subsidiary of Austria’s Erste Group, has been piloting Windows 7 at its ATMs.





“We aim to roll out Windows 7 in the next few months,” said Jiri Charousek, Ceska Sporitelna’s head of applications support. “Installing Windows 7 will enable us to have EMV certification for our ATM EMV software kernel.”

And Citi Global Retail Bank’s move to Windows 7 is in progress, said James Trocmé, senior vice president and ATM channel manager. “The logistics to make the switch seamless in all our markets is significant.”

Trocmé said planning for a globally coordinated Windows 7 migration in every market where Citi operates ATMs is one of the three most critical changes Citi needs to make to its ATM fleet in 2014 — along with automating more branch transactions and moving them to the ATM channel, and improving ATM functionality and customer experience.

“I recommend not rushing your Windows 7 migration and planning the process properly. Banks should develop a strategy for remote Windows 7 updates.”

— Maxim Masenko, head of Russian self-service technology vendor Hendz’s software department

CHAPTER 3

The Future Role of the ATM

With the ongoing drive to self-service banking, ATMs will assume more of the functions traditionally handled by tellers in branches.

“Currently, most bank ATMs are still outside the branch, and there is little self-service inside the branch,” said Diebold’s Bose. “We will see more ATMs being deployed in branches, offering a wide range of transactions such as cashing checks, coin dispensing, account maintenance including reordering checkbooks and the ability to start applications for new products.”

However, most customers won’t want to stand in line to withdraw cash at an ATM where someone is applying for a loan or videoconferencing with a remote customer service agent. “Some of these additional functions will be offered by in-branch kiosks instead of cash-dispensing ATMs,” Bose said. “This will be a business decision, not a technology decision.”

ATMs can become dynamic in the services they offer, depending on the time of day.

“To prevent long lines developing behind someone videoconferencing during lunch breaks, banks may turn off the multiple functions at some of their ATMs during this busy time,” said KAL’s Korala. “These ATMs will become cash-dispensing-only terminals during the lunch hour. Banks might keep one of the ATMs in their lobby for videoconferencing during busy periods, leaving the rest for cash withdrawals.”

The ATM’s role is undergoing a complete makeover, said Les Riedl, senior managing partner at U.S.-based consultancy Bank Solutions Group.

“A few years ago, many people saw ATMs as a mature and declining delivery channel,” Riedl said. “But there is now a convergence of factors in the financial services industry driving a redefinition of the ATM’s role. These include changing consumer behaviors, increased regulations, a greater need for FIs to rationalize their distribution channels and costs, new ATM technologies, mobile banking/payments and new developments in digital currency. The impact of these factors is spurring an unprecedented period of innovation and the reinvention of ATMs from being cash dispensers to essential components of a self-service banking and payments hub.”



“ATMs of the future will provide cardless transactions and will take advantage of multiple screens to provide a platform for improved video marketing.”

— Quentin Kelly, Australian IT manager for DC Payments

Account opening

To be able to cost-effectively deliver services over the next five to 10 years, banks will need to deploy self-service machines offering account-opening functions.

“I see self-service machines, which include an ATM capability, doing 100 percent of the account-opening functions traditionally provided in branches,” said Steve Hensley, KAL’s executive vice president of global sales. “They will have a biometric capability for Know Your Customer (KYC) requirements and a scanner for reading identity documents such as driver’s licenses. They will also be able to accept digitally signed documents and issue bank cards.”

Self-service machines will let customers open accounts outside of banking hours, which will be more convenient than having to go to branches when they are open, Hensley said.

Biometrics

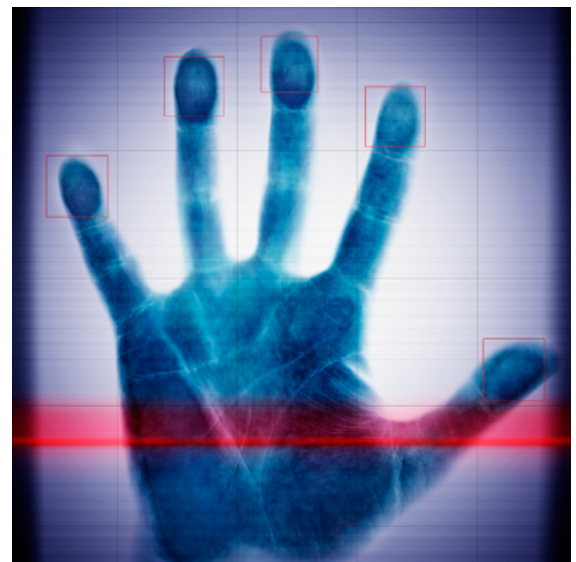
Mercator’s O’Brien said banks have a lot of interest in biometric authentication as a way to increase security at ATMs by removing the need for cards. However, so far, biometric authentication has been adopted mainly by ATM deployers in emerging markets.

“We feel biometric authentication will mature and be usable earlier than other security technologies,” said IndusInd Bank’s Sharma. “Our ATMs already support cardless withdrawals.”

Rohan Muttiah, Commercial Bank of Ceylon’s chief information officer, said cards will need to be supported at least in the medium term, but security and convenience will drive a shift toward biometric and mobile interfaces for ATM transactions.

An increase in biometric technologies also could lead to a substantial increase in automation.

“A key role played by tellers is to verify the identity of customers,” said Peter Shulek, president of Europeum, a supplier of hardware to Russian banks. “If biometric technologies such as fingerprint scanners can solve the problem of identification, then 90 percent of branch operations could be automated.”



User experience

A bank should strive to offer quality interfaces and personalization at its ATMs to impress customers and generate customer loyalty, said Hensley. It also can offer those features to non-customers.

Also, banks' CRM systems should remember what the customer's preferences are for ATM transactions. "They shouldn't need to ask whether customers want a receipt and out of which account they want to withdraw cash – they should know this based on the customers' transaction history without having to ask," Hensley said.

Many people enter a branch only when they need a specific service, such as a loan, but they regularly use the bank's ATMs, said Michel Denis, KAL's director of engineering. "So the bank can send them personalized messages at the ATM, such as 'Your checkbook is waiting at the branch' or 'Your credit card is about to expire.'"

Fiserv's Siorek predicts that the ATM user interface will evolve beyond lists of functions and displays of static options. "Screens will become more graphical, and video marketing will increasingly become part of the ATM experience. Unlike current marketing options that display only on welcome, wait and thank-you screens, these video messages can display throughout the transaction in a window designated for that purpose."

A customer's experience at the ATM has a significant impact on that person's perception of the bank, said PNC's Justice.

"We not only need to make the ATM transaction flow more intuitive, but we need to greatly improve the feedback we give customers when something doesn't work as they desired," he said. "Too often, customers are left with poor feedback from the ATM when their transaction wasn't successful."

Citi

In January 2014, Citi launched a redesign of its ATM user interface in the U.S., offering remembered preferences and the option of reviewing account balances without leaving the current screen.

"The new ATM user interface offers an intuitive screen design, making navigation quicker for customers," said Citi's Trocmé. "Our plan is to deploy this new ATM experience globally. We also aim to bring more services to our ATMs, expanding on what we learned from our Citi Express project that rolled out in Asia in 2012."

"They shouldn't need to ask whether customers want a receipt and out of which account they want to withdraw cash – they should know this based on the customers' transaction history without having to ask"

— Steve Hensley, KAL's executive vice president of global sales.

Citibank Express ATMs enable customers to do almost all of their banking without visiting branches, including opening accounts and applying for loans and cards. The ATMs are equipped with an online banking connection, videoconferencing and biometric authentication. A customer can start a transaction on a PC or mobile device and complete it on Citibank Express, and vice versa.

Marketing

Targeted one-to-one marketing has excellent potential at ATMs. Moreover, targeted ATM advertising needs to be actionable to be effective. For example, the addition of video in an ATM advert creates a compelling call to action.

Targeted marketing at ATMs is very important for PNC, Justice said. “The acceptance rate of offers at the ATM by our customers has been significant,” he said.

ING Bank Turkey uses its ATMs to segment its self-service users and deliver the most relevant promotions and advertising based on their location, said ING’s Özertürk.

“We can target our existing customer base, delivering one advertising campaign to platinum cardholders and different messages to student account holders,” he said. “Also, we can promote our products to non-customers at our ATMs.”

Diversity

In the future, the financial services industry may see a wide diversity in implementation of self-service technology by banks.

David Cavell, an international retail banking consultant, said North American banks have a different attitude toward multifunction ATMs than banks in other markets have.

“The North American attitude is that everything goes through the ATM, including check deposit, check cashing, bill payments, money transfers and cash withdrawals,” he said. “In the rest of the world, banks provide ATMs and kiosks as separate delivery channels, with cash withdrawals only being offered at ATMs. Outside the U.S., you’re more likely to find stand-alone kiosks for non-cash transactions in the branch.”

KAL has developed a Retail Teller Machine (RTM) that provides all types of self-service transactions including those traditionally done over the teller

“I envisage a future in which ATMs will be completely customizable by their users so they can save time while carrying out ATM transactions.”

— Carmine Evangelista, CTO at Auriga



counter. RTMs can be located in cash-heavy locations such as stores, post offices and restaurants and can be operated at a tenth of the cost of a traditional ATM for delivering cash to its customers.

“The RTM becomes a little mini-bank at a much lower cost than a real branch,” KAL’s Korala said. “Because it’s targeted at locations with low foot-fall, it can be expanded with features like videoconferencing so it acts as a remote teller. The RTM could then do most of the teller transactions that customers typically carry out at the branch.”

Delivering New Functionality

Many of the banks interviewed for the 2014 Guide are looking to implement new functionality, such as person-to-person payments and mobile-ATM integration, at their ATMs. Individual banks have their own ideas of which functionalities are most important, based on consumer demand in a given market.

“The ATM’s capability to integrate with smartphones and P2P payments looks very interesting,” said Expedito Garcia, head of personal cash management, transaction banking group at Philippines-based Banco De Oro Unibank. “There are a lot of practical applications for these technologies in the Philippines, as we have a very strong domestic remittance market.”

Carol Chua, vice president and head of Philippines-based China Banking Corporation’s alternative channels division, suggested that banks aggressively push transactions such as check and cash deposits, check cashing, bill payments and prepaid card top-up to self-service terminals.

PNC wants to implement three important new functions: electronic ATM receipts, integration of the ATM with mobile transactions and remote teller assistance, Justice said.

Alfa Bank, Russia’s largest private bank, already has put into place person-to-person payments and plans to test video teller machine technology at its ATMs.

“We also intend to use NFC (near field communications) to speed up the cash-dispensing function and are rolling out cash-recycling technology,” said Alfa Bank’s Daryoshin.

Commercial Bank of Ceylon is introducing additional functions, such as deposits, account opening and loan applications, as it sees growing customer adoption, said Commercial Bank of Ceylon’s Muttiah.



Erste Bank plans to implement a single software platform using KAL software on the ATMs operated by its Central European subsidiaries, said Ceska Sporitelna's Charousek. "This platform will enable Erste's subsidiaries to offer a range of products and services at their ATMs."

And Jorge Hernández, senior vice president of Evertec, which operates the ATH PIN debit and ATM network in Central America and the Caribbean, explained the view from his segment.

"We're seeing some leading Central America and Caribbean FIs use ATMs to gain competitive advantage by offering additional services through the ATM, such as prepaid cellular reloads, as well as strategically placing ATMs at high-volume locations," he said. "We also foresee more FIs using their ATMs for service offerings to the unbanked as well as other market segments."

ATM innovation leaders

Barcelona, Spain-based CaixaBank is a global ATM innovation leader with its Punt Groc (yellow point) ATMs. Out of CaixaBank's 10,000 ATMs, over 1,000 are Punt Groc ATMs.

Punt Groc ATMs offer cash withdrawals via contactless cards and incorporate a double screen design that allows products and services to be advertised on one screen while the other is used for transactions. Over 200 different transaction types are available at Punt Groc ATMs, which feature advanced banknote-recognition technology and provide automatic balance settlement.

"We plan to keep increasing the functionality of our ATMs with features such as cash recycling and biometric identification," a CaixaBank spokesperson said. "We already sell products at our ATMs such as pre-agreed loans and virtual cards, and we're preparing to add additional products in the near future."

CaixaBank customers can personalize the Punt Groc ATM initial services menu to suit their needs. The "frequent operations" option showing a customer's most-used transactions can be configured via ATMs or through CaixaBank's online banking channel. The ATMs feature other support tools, such as transaction searches and the ability to look up nearby branches and ATMs.

Currently, 80 percent of CaixaBank branch transactions are carried out at its ATMs. "In the future, 100 percent of branch transactions will be carried



out at our ATMs, enabling our employees to focus on sales activities,” the spokesperson said. “ATMs will be an essential tool in our branches.”

The spokesperson added that CaixaBank plans to provide remote or video assistance to its customers through smartphones and tablets rather than through the ATM.

Another ATM innovator is BBVA, both in Spain and the U.S. Working with Wincor Nixdorf, BBVA designed its prototype ABIL ATM on the basis of observations of how people behaved at ATMs in BBVA branches in Spain, Mexico and the U.S.

By the end of 2013, 100 ABIL multifunction ATMs had been installed in Spain. The ATMs offer several new functions compared with traditional ATMs, including:

- Account access using electronic IDs and passwords from bbva.es
- Ability to complete NFC transactions with contactless cards
- Account statements printed in DIN A4 format

In addition, the system features a large touchscreen and an intuitive user interface. BBVA intends to gradually establish this new self-service terminal as its standard ATM.

In the U.S., BBVA Compass is piloting a drive-thru concept ATM developed by Wincor Nixdorf that lets customers consult with bank staff by video. The drive-thru piloted in Houston enables BBVA Compass to provide many of the services offered inside the branch via self-service in real time. When customers have questions, a member of the bank staff is available for a videoconference, providing personal consultation via the self-service channel.


IADs

“IAD-owned ATMs will become commoditized in terms of offering cash withdrawals, as bank ATMs increasingly offer one-to-one offers and a wide range of transactions to their customers,” said CR2’s Dolan. “So the challenge for IADs will be to either increase the utility of their ATMs or become commoditized.”

Fiserv’s Siorek predicts continued consolidation among IADs as traditional revenue streams decrease and compliance costs increase. “While most U.S. IADs deploy ATMs that aren’t affected by the Windows XP end-of-life in April 2014, they will face costs associated with enabling EMV at their terminals. IADs will look to earn additional income by providing market-



Source: BBVA Compass



ing opportunities as well as by partnering with banks and credit unions to deploy FI-branded ATMs.”

NCR’s Johnston said IADs could offer cash and check deposits at their ATMs as an outsourced service to banks. “IADs could also provide alternative financial services, such as the ability to deposit cash into PayPal and Google accounts,” he said.

IADs have two challenges, said Heiko Zissner, general manager of Germany’s ITecon Financial IT-Service.

“Firstly, they must lower their operating costs and get full transparency on these costs,” Zissner said. “It’s important for IADs to be able to see each individual ATM’s profit ratio. ATM monitoring systems will need to be extended to include costs for maintenance, cash replenishments, leasing and space rental, so these costs can be compared to revenues coming from transactions or merchants.”

The second challenge is to increase the number of “sellable” products at ATMs. “DCC (dynamic currency conversion) is emerging as a potential cash cow for IADs,” Zissner said. “But European IADs need many more functionalities at their ATMs, especially because of the European Commission’s ongoing regulatory initiatives. I envisage European IADs increasing the number of ticket- or voucher-selling applications at their ATMs. Also, advertising is still a large revenue-generating opportunity for ATMs, depending on the location.”

“Offering digital currency conversion, where consumers withdraw cash from e-wallet accounts such as PayPal, will generate incremental fee-based transaction volumes for IADs.”

— Les Riedl, senior managing partner at Bank Solutions Group

CHAPTER 4

The Future of the Branch

The bank branch of the future will resemble a high-tech Apple store, with customers using self-service and assisted self-service devices to carry out transactions and apply for products.

“We will increasingly see a range of customer-activated self-service devices in branches, including desktop PCs, iPads, standalone kiosks and ATMs,” said Cavell, the international retail banking consultant. “The technology now exists to automate all the functions of a branch. This means banks will need a different type of staff from transaction-handling tellers — employees able to develop profitable relationships with customers. The branch is the lead customer relationship development channel, as the best way to develop customer relationships is still face to face.”

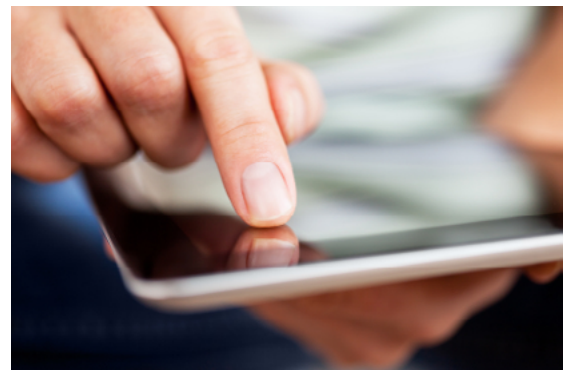
Metamorphosis

“We’re seeing a major metamorphosis, with U.S. bank branches moving to a hub-and-spoke model requiring fewer 8,000- to 10,000-square-foot traditional branches,” Mercator’s O’Brien said. “FIs are now looking at 2,000- to 2,500-square-foot mini-branches in urban areas as well as ‘pop-up’ or mobile branches that could offer a temporary presence in a new market.”

The mini-branches would work in conjunction with full-service branches and would include a greeter or concierge along with self-service devices such as ATMs, kiosks and tablets, O’Brien said. The concierge’s role would be to provide assisted service for customers using the self-service devices. If they need financial advice or services such as wealth management, customers still could go to a traditional flagship full-service branch.

According to O’Brien, the ATM will act as the hub for the self-service technology offered in mini-branches.

“Banks are very interested in learning lessons from how innovative retailers such as Apple are interacting with consumers in their stores,” he said. “Apple stores have an open design and knowledgeable and helpful staff.”



“Banks can learn a lot from retailers such as Apple, which have implemented a seamless omnichannel shopping experience in their stores.”

— Michael Engel, Wincor Nixdorf’s director of banking software

Banks should strive to have an omnichannel, 360-degree view of their customers, involving their branches and self-service channels such as ATMs, Internet banking and mobile devices.

U.S. branch innovators

In April 2013, Bank of America (BoFA) introduced its Teller Assist ATMs, which combine ATM self-service features with the human touch of a teller. These next-generation ATMs will be installed in banking center, drive-up and remote locations and will offer video links to remote BoFA call-center personnel during extended hours.

Functionalities offered by Teller Assist ATMs include:

- Receive cash withdrawals in various denominations (\$1, \$5, \$20 and \$100)
- Cash checks and receive exact change
- Deposit checks with cash back
- Make loan or credit card payments
- Access with a U.S. government-issued photo ID if ATM/debit card is not available
- Receive available balances for BoFA accounts
- Print mini or full statements for checking and savings accounts

In August 2013, BoFA opened the first of its new express banking centers in Manhattan. These centers offer a more flexible schedule than a full-service branch, while integrating self-service technology including Teller Assist ATMs and providing on-site associates to help customers with their financial needs.

Webster Bank, a Connecticut-based regional bank, is optimizing its banking centers with plans to renovate one of its 168 branches in its new, open pod” format and to close two others, according to [ATM Marketplace](#).

Features of the new 2,976-square-foot branch include a design eliminating teller windows in favor of an open space where staff interact with customers. The facility also will provide a 24-hour walk-up deposit automation ATM, an electronic coin-counting machine, digital video displays and “universal bankers” as a single point of customer contact. Webster says universal banks are trained to handle every type of transaction, from cashing checks to opening loan accounts.



International innovators

A number of major non-U.S. banks operate branches featuring bank-owned tablets for use by customers. In March 2011, [Commonwealth Bank of Australia](#) (CBA) opened a flagship branch at 240 Queen St., Brisbane, providing iPads, ATMs and kiosks for use by customers. CBA says customers can use the iPads to access its mobile banking service, look at products and make appointments with specialists.

In August 2012, Brazil's Banco Bradesco opened a "bank of the future" branch in a São Paulo shopping mall. The Bradesco Next branch offers biometric ATMs that let customers withdraw cash without using cards or PINs and receive transaction receipts by email. It also provides smartphones and tablets that customers can use to access Bradesco's banking services.

Customers can obtain personalized financial advice from touchscreen-activated digital avatars and talk to human advisers via videoconferencing. To access the personalized information on the touchscreens, customers must have registered for Bradesco's biometric ATM access service and log in using a palm reader.

In February 2014, UniCredit opened a high-tech "branch of the future" in Milan, Italy, in the first stage of a project to improve the customer experience at 1,000 branches. When they enter the branch, customers are greeted by a manager at a workstation that is used to manage lines and appointments with advisers, as well as to provide immediate help with basic issues.

In the waiting area, a touchscreen table, tablet and free Wi-Fi allow customers to browse the Web, while a bank employee is available to demonstrate online and mobile services.


Teller and adviser workstations include electronic signature pads, and a meeting room with video-conferencing equipment is available so customers can talk to remote specialists.

The UniCredit branch self-service area, which is accessible 24 hours a day, contains ATMs that memorize the customer's debit card habits and present the customer with the amounts most frequently withdrawn. Outside of branch hours, customers can access a video room that connects them remotely to a consultant.

Videoconferencing and remote teller assistance

According to O'Brien, Mercator's U.S. CustomerMonitor surveys have identified that customers are interested in using videoconferencing at ATMs.





“People are increasingly comfortable with videoconferencing due to using Skype,” he said.

“ATMs that are enabled for videoconferencing will be able to provide more remote fulfillment of simple, quick sales opportunities,” said PNC’s Justice.

Citi is interested in videoconferencing’s potential to provide value-added customer service, such as extended business hours and access to product specialists, said Trocmé. “For Citi, it’s less about the technology itself and more about how implementing a particular technology adds value while ensuring customer satisfaction.”

Many Chinese banks are experimenting with videoconferencing and remote teller assistance at their ATMs, said Zijin Technologies’ Cheng.

“Chinese banks are trying to find a new model for expanding their branches rapidly at lower cost in urban communities, as the cost of new branches with human tellers is very high,” he said.

While consumers are comfortable with using self-service terminals for tasks they do regularly, such as withdrawing cash, they would appreciate assistance from a remote teller for those tasks they don’t do regularly said KAL’s Korala. “There are several hundred different types of transactions that tellers perform in branches. Provided an ATM has a video link to a remote teller, it could handle most of these transactions.”

“ATMs that are enabled for videoconferencing will be able to provide more remote fulfillment of simple, quick sales opportunities”

— Ken Justice, senior vice president/ATM executive at PNC Bank

CHAPTER 5

Key Performance Indicators for Banks' ATM Operations

The three operational key performance indicators (KPIs) banks care about are the speed of transactions at their ATMs, their ATM availability and their total cost of ownership, said KAL's Korala. "The more error conditions an ATM has that require a visit by a technician, the greater the downtime and the greater the total cost of ownership."

However, one of the challenges banks face is to have an iron-clad way of generating information on their ATM availability.

"If you have accurate figures on your ATM performance and availability, you can tell what effect changing your ATM software and infrastructure will have in terms of availability," said KAL's Hensley.

"Generally, banks tend to be less effective than IADs in analyzing, managing and optimizing their ATMs' performance," said Francesco Burelli, a partner with U.K.-based Value Partners Management Consulting. "In particular, large multinational banks may have a challenge in consistently managing their ATM estates across the group. Given the nature of the ATM channel, ATM KPIs may get lost and slip from the top priorities within large organizations."

Burelli stressed that high availability and performance by themselves do not necessarily lead to higher profitability, if ATMs are positioned in unfavorable locations or if the services offered through ATMs are not well matched with the demographics of their users.

Transaction migration

PNC's Justice warns that managing transaction migration from tellers to ATMs while maintaining superior customer experience is a critical issue for banks. "Adding more complex transactions to the ATM means more potential hardware failures and a more complex experience for customers to follow," he said. "Banks need to make sure the ATM channel is ready to manage the increased complexity and volumes that come with the transaction migration."

Transaction speed is an essential consideration.

Important ATM KPIs for banks, credit unions, processors and IADs:

1. Total business cost associated with system downtime (e.g., loss of business)
2. Direct business cost associated with system downtime (e.g., SLA compensation and operational support costs)
3. Failed customer transactions by value of service revenue lost
4. Payment failure rates by root cause (e.g., lost communication errors, host or third-party connection timeouts, message authentication code errors, transaction status errors and decline response code errors)
5. Number of approved transactions by card type (e.g., debit, EFT, credit, prepaid), service type (e.g., withdrawal, deposit, mobile top-up, bill payment) and ATM terminal ID
6. Total cash withdrawal, deposit and account-to-account transfer amounts by ATM (on an hourly basis for more precise information on cash holdings and cash replenishment planning)
7. ATM uptime and availability
8. Customer Experience score
9. Number of incidents reported by end customers
10. Number of first call resolution rates (e.g., lost comms or No Fault Found service calls)

Source: Stacy Gorkoff, vice president of strategic marketing at Inetco Systems

“As more services are added to ATMs, transaction speed will become an increasingly important KPI,” said Evertec’s Hernández.

Justice said PNC plans to grow its ATM network to meet the increased transaction volume created by transaction migration from the teller line as well as to provide more ATM redundancy at branches that have only one ATM installed today. “We also continue to monitor our off-premise network to grow or shrink it as the business case supports either action,” he said.

The performance of the deposit automation devices in the ATM needs more focus, according to Justice. “Banks expect these devices to fail at a rate similar to an envelope depositor, but vendors are far away from being able to provide that level of performance today,” he said. “The vendor which figures this out first will gain significant market share.”

Further tracking of less common ATM transactions could be helpful.

“While existing ATM management solutions produce statistics on withdrawal and deposit transactions at ATMs, many don’t capture information on other ‘emerging’ transaction types,” said Stacy Gorkoff, vice president of strategic marketing at Vancouver, Canada-based application monitoring software firm Inetco Systems. These transaction types include internal funds transfers, mobile e-receipts, third-party bill payment, marketing fulfillment campaigns and value-added services such as mobile top-up, prepaid gift cards or transit ticketing.

ATM network monitoring

In today’s complex ATM network environments, most issues affecting the completion of customer interactions occur beyond the ATM and usually are related to network communication errors, third-party disconnects or application performance problems.

“Real-time, end-to-end network and application monitoring is a key requirement for any bank, credit union, IAD or ATM payment processor,” Gorkoff said.

While Diebold’s Watson agrees that monitoring is an effective tool for increasing ATM uptime, he says it is of limited value unless the ATM deployer’s monitoring system is integrated with its service provider’s platform and any alerts can be actionable.

Mercator’s O’Brien is seeing a greater desire among FIs to use application performance monitoring (APM) systems, which can identify a problem before



“Real-time, end-to-end network and application monitoring is a key requirement for any bank, credit union, IAD or ATM payment processor,”

— Stacy Gorkoff, vice president of strategic marketing at Inetco Systems

it occurs, by monitoring ATM hardware and software as well as network issues such as availability and speed.

APM systems use business intelligence tools to provide a dashboard showing which ATMs are working properly, which ATMs are going down and which have failed.

Predictive analytics

The increased use of predictive analytics to anticipate failures and better ability to remotely fix problems without having to reboot ATMs would be helpful, says PNC's Justice.

Citi's Trocmé said that, while such analysis is a significant investment, it improves all-around performance.

"Monitoring ATM statuses and events at the device and application levels enables remote troubleshooting and predictive maintenance," he said. "Adding to that is the collection of business intelligence with regard to transaction volumes and types and predictive cash supply chain cash management and optimization."

The combination of predictive analysis and standard ATM monitoring will allow potential issues to be identified and resolved before the ATM comes out of service, Fiserv's Siorek said.

"Also, adding a cash-management forecasting tool will reduce cash outages," Siorek said. "An added benefit of a robust cash-forecasting solution is that the costs of cash are reduced, due to reductions in emergency cash runs and not having to carry unneeded cash in the ATM."


Network optimization

Optimizing the ATM network is critical for FIs in all markets. "Alfa Bank has a large ATM network, including 3,100 ATMs that we own and 12,000 ATMs owned by our partner banks," said Alfa Bank's Daryoshin. "We use our network to promote our brand and to gain advantage in payroll projects. Through our partnerships, we ensure that our customers' cash is always a very short distance from them."

China Banking Corporation's Chua said the company takes a cautious approach to growing its network in the Philippines.

"We're very careful to ensure the infrastructure required to make our ATM operations successful is in place, rather than risk our ATMs being unavailable,"





she said. “We continue to evaluate new sites for our ATMs and monitor those ATMs that are underperforming. We take out poor performers and relocate them to where they can serve our clients better.”

UniCredit also evaluates underperforming ATMs, using costs as a driver for removal.

“We’ve closed hundreds of ATMs in the last few years, but are also adding new ATMs where required by our branch transformation program,” UniCredit’s Ghidoni said.

CHAPTER 6

EMV Migration in the U.S.

The U.S. is one of the last countries to migrate to EMV. Most European, Latin American and Asian countries already have migrated to EMV or are in the process of doing so.

Migrating ATMs to EMV will be a greater task in the U.S. than elsewhere because of the U.S. payments industry's fragmented nature. Unlike Europe, the U.S. has many thousands of small banks and credit unions, as well as multiple acquirers/processors, ISOs and PIN debit networks. Each acquirer/processor and debit network needs to certify the EMV card readers and EMV software deployed on the ATMs and POS terminals connected to its switch.

As part of their EMV roadmaps, Visa and MasterCard both have established counterfeit card fraud liability shifts for U.S. ATM and POS acquirers.

On April 19, 2013, counterfeit card fraud liability shifted to U.S. ATM acquirers that do not accept EMV chip cards for Maestro debit card interregional transactions. From April 2015, all U.S. ATM third-party acquirers/processors must be able to support EMV transactions, Visa says.

From October 2015, counterfeit card fraud liability will shift to U.S. acquirers that do not accept EMV cards at U.S. POS terminals, according to MasterCard and Visa.

In October 2016, counterfeit card fraud liability will shift to ATM acquirers that do not accept MasterCard-branded EMV cards at U.S. ATMs. From October 2017, counterfeit card fraud liability will shift to ATM acquirers that do not accept Visa-branded EMV cards at U.S. ATMs.

Mark Smith, vice president of financial solutions at Peoria, Ill.-based ISO Kahuna ATM Solutions, said that, because of EMV and Windows 7 upgrades, U.S. banks are closely reviewing their ATM operational costs. "Look for more outsourcing from the banks to ISOs to manage their ATM fleets," he said.

Delay

Legislative uncertainty over the Durbin Amendment has been a major obstacle to EMV debit card migration in the U.S. Implemented by the Federal



Reserve in 2011, Durbin imposes a 21-cent cap on U.S. debit card interchange and requires debit issuers to link their cards to two unaffiliated debit networks, so merchants can choose where to route transactions.

On July 31, 2013, U.S. District Court Judge Richard Leon overturned the Federal Reserve's implementation of Durbin, including its debit routing scheme. The Federal Reserve subsequently launched an appeal against Leon's ruling.

On March 21, 2014, the U.S. Court of Appeals for the District of Columbia Circuit upheld the Federal Reserve's implementation of Durbin, including its requirement for two unaffiliated debit brands on debit cards — for example, a PIN debit network and a signature debit network. Leon's ruling would have required debit cards to contain two rival signature debit brands and two rival PIN debit brands.

U.S. debit card issuers had been holding back from migrating to EMV because of uncertainty about the future of Durbin.

“Based on in-depth discussions with issuers, payment networks and processors, we strongly believe debit issuers will now begin an accelerated EMV implementation process,” Ron Mazursky, director of Mercator Advisory Group's debit advisory service, wrote in a [blog posting](#).

Application Identifier (AID)

As it was developed originally in Europe, where countries typically have a single debit network, the EMV specification does not allow EMV cards to give merchants a choice of debit network.

An EMV card's chip contains an application identifier (AID), which tells the acquirer over which network — Visa Debit, for example — the transaction should be routed.

U.S. issuers and merchants have called for a common standard for an AID that would be accepted by all the U.S. debit networks. An acquirer would check the AID against its database to see over which debit network the merchant wanted the transaction to be routed.

Visa, MasterCard and the Debit Network Alliance — a group of non-card brand regional debit networks — each have proposed rival common AID solutions. These proposals each call for an EMV debit card to contain a single AID that would identify which debit networks the issuer supports.



In March 2014, Fiserv and MasterCard reached an agreement to make MasterCard's U.S. common EMV debit AID solution available for Fiserv's Accel debit network. Visa and First Data's STAR Network agreed in February 2014 to share Visa's common debit AID solution.

In March 2014, Visa and Pulse signed an agreement allowing banks that issue debit cards on both the Visa Debit and PULSE networks to use Visa's common debit AID solution.

The EMV Migration Forum has developed a technical framework for a U.S. EMV debit solution. The framework follows the EMV specification and addresses current and potential future U.S. debit routing regulatory requirements.

Guidance

The ATM Marketplace report "[EMV Migration Guide](#)" says U.S. ATM deployers cannot afford to postpone their EMV migration.

ATM operators should start planning their migration to EMV now, because leaving their migration to the last minute could be a costly mistake, the report says. Not only are Visa and MasterCard unwilling to extend their liability shift deadlines, but ATM vendors likely will not have the resources to assist large numbers of clients all trying to migrate to EMV close to the deadlines.

As part of their EMV preparations, ATM deployers need to educate themselves about EMV technology and implementation options, assess their current infrastructure and determine appropriate changes. They also should consider running their EMV and Windows 7 migration projects in tandem to achieve operational efficiencies and cost savings.

Customer education about using EMV card readers will need to be part of U.S. ATM deployers' migration strategy. Since U.S. cardholders are accustomed to swiping magnetic-stripe cards quickly through ATM dip card readers, they will need to be informed about the need to leave the EMV card in the reader until it has read and written to the chip.



CHAPTER 7

Mobile-ATM Integration

Mobile ATM withdrawals proved to be a hot topic among executives interviewed for the 2014 guide.

In a mobile ATM transaction, the customer pre-stages the cash withdrawal using a mobile banking app on a smartphone. Because the app communicates directly with the customer's bank's host system, no card network is involved.

"A mobile-only interface for cardless ATM transactions is the next step forward," said China Banking Corporation's Chua. "One-time passcodes for ATM withdrawals and mobile cardless transactions are features that China Banking Corporation would like to explore to curb fraud."

"If ATMs are to remain viable, the future lies in channel integration," said Stephanie Polen, vice president of financial institutions, product and portfolio management at U.S. processor Vantiv. "At Vantiv, we're confident that in the short term mobile technologies and mobile integration will gain traction in the ATM space. As consumers continue to become more reliant on their smartphones, they will continue to require more convenient ways to pay and to access the money in their accounts."

For Banco De Oro Unibank's Garcia, mobile-ATM integration is one of the three most important technologies that would improve an ATM user's experience, along with touchscreen/multi-touch capability and P2P transactions.

Wincor Nixdorf has many clients that offer mobile cash withdrawals from their ATMs, Wincor Nixdorf's Engel says.


"These cardless transactions involve a token — a set of one-time security numbers — being generated on the server, displayed on the customer's mobile device and transmitted to the ATM," he said. "Mostly, the customer transmits the token via 2D QR code, because Bluetooth low energy (BLE) and NFC-based protocols aren't standardized yet. However, NFC or BLE will become standardized for ATMs in the future."

"We think NFC is a more efficient way for smartphones to interact with ATMs than by using QR codes," NCR's Johnston said. "With QR codes,



"If ATMs are to remain viable, the future lies in channel integration,"

— Stephanie Polen, vice president of financial institutions, product and portfolio management at Vantiv



the customer's smartphone camera has to scan a QR code generated by the ATM, or the ATM needs a camera to scan a QR code displayed on the smartphone."

QR code-based mobile cash access uses the strong authentication built into mobile banking apps. As the technology cuts out the card networks, it can be used to provide mobile cash access for accounts that aren't linked to cards, such as PayPal accounts, payroll accounts or brokerage accounts.

Bank Solutions Group's Riedl says that ATMs will play a major role in P2P payments in the future. "For example, I owe you \$50, so I send you a withdrawal code from my smartphone that you can use at an ATM to get cash," he said. "Consumers could also send each other codes for virtual gift cards from their mobile device, which the recipient could use to get cash from an ATM."

"ING Bank Turkey has a very popular solution which allows customers to send money to a friend from their Facebook account, which the friend can withdraw from ING Bank's ATMs," ING Bank's Özertürk said.

On-us

A key challenge is that, because of a lack of standards ensuring interoperability, mobile ATM transactions still are restricted to the on-us environment.

NCR's Johnston says that, because cardless cash withdrawals are so convenient, standards will be developed to facilitate off-us mobile ATM withdrawals. "There won't be a ramp-up in mobile ATM withdrawals in 2014 and 2015," he said. "Cardless cash withdrawals will take off in the second half of this decade. These new technologies aren't easy to implement; otherwise, we would be implementing them now."


However, KAL's Korala is doubtful about off-us mobile ATM withdrawals. "To implement off-us mobile cash access, banks will have to extend their infrastructure, which means a lot of back-end work," he said. "This will be expensive."

"At present, cardless ATM transactions are little more than a novelty," said Matt Stares, head of retail product development at U.K.-based IAD PayPoint. "In order for them to become widespread, they need to be significantly more convenient than card transactions."

Although many of ACI Worldwide's ATM customers are interested in mobile-ATM integration, they do not feel the solutions are well enough defined from

"At present, cardless ATM transactions are little more than a novelty,"

— Matt Stares, head of retail product development at PayPoint.



the perspective of integration between all stakeholders, said Frederique Slevin, principal product manager of retail payments.

“For example, the type of payment token issued to initiate the transaction and the interfaces between mobile applications and servers and ATMs and network servers need to be defined,” she said. “Many people are waiting to see how the issuing market will define mobile-based payment tokens, before choosing to invest in one of the technologies available today.”

PNC’s Justice said that, for the foreseeable future, mobile cash access will not influence the design of the standard ATM.

“At some point, customers may bring their own user interface in the form of a smart device, but that is a long way away from becoming so mainstream that headless ATMs can be deployed,” he said. “A certain segment of customers will adopt this path quickly, but, until everyone does so, traditional screens and PIN pads will be required on ATMs.”

CHAPTER 8

Cash Recycling at ATMs

While U.S. banks have yet to adopt cash recycling at ATMs, Asian FIs are leading the world in their deployment of the technology.

“Japan has had cash recycling for 25 years, and 100 percent of Japanese ATMs now recycle cash,” KAL’s Korala said. “Just under 100 percent of Korean ATMs offer cash recycling, while 40 percent of Chinese ATMs recycle cash. Cash recycling is expanding throughout Asia.”

Bank of Chongqing is implementing cash recycling gradually at its ATMs, said the Chinese bank’s Li Shuang.

Commercial Bank of Ceylon’s Muttiah warns that cash recycling requires good-quality banknotes, a feature that may not be available in some locations. “We’re not looking to deploy cash recycling at ATMs just yet,” said China Banking Corporation’s Chua. “Until the quality of the bills in the Philippines improves, it’s not likely that recyclers will be used pervasively in our country.”

Europe

While European banks, led by Italy, are looking at ATM cash recycling, KAL’s Korala said, deployment is not at levels found in Asia. “The U.K. is lagging behind other European countries in cash recycling.”

Alfa Bank uses cash recyclers and is seeing cost savings from the technology, said the Russian bank’s Daryoshin. UniCredit will be implementing cash recycling in 2014, Ghidoni said.

Cash recycling also is popular in Germany. “For many German banks, cash recycling replaces the need for cashiers and the night-deposit facilities they used to provide for merchants,” Itecon’s Zissner said.

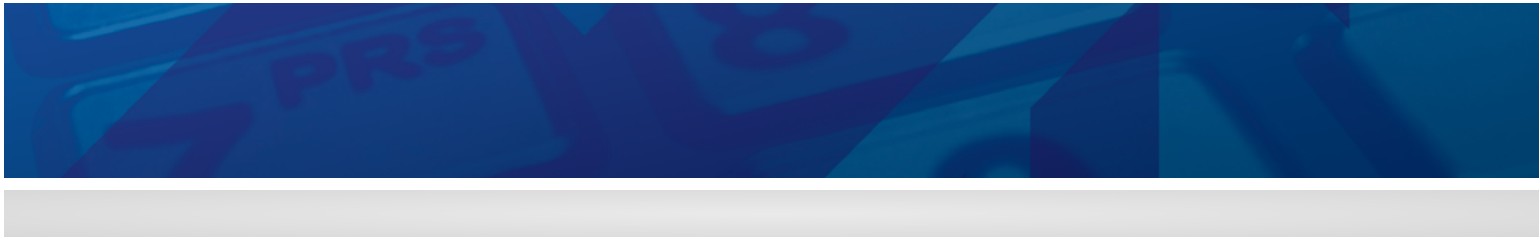
The U.S.

U.S. banks on the whole aren’t ready to adopt cash recycling yet, as they haven’t seen a business case for the technology.



“Asia is leading the world in adopting cash recycling at ATMs.

— Aravinda Korala, CEO of KAL ATM Software



“You shouldn’t embark on enabling cash recycling lightly, as it is a large investment from a hardware and facility perspective, and because of its impact on device drivers and potential changes in reconciliation practices,” said ACI Worldwide’s Slevin. “ATM owners have to conduct a thorough analysis using a cash-management solution of the cash cycle for each of their ATMs to ensure cash recycling is sustainable. I’ve heard several speakers at industry conferences say that, taking these factors into consideration, U.S. banks have a hard time building a business case for the overall investment.”

Both Citi and PNC are in favor of cash recycling.

“I’m a huge fan of using cash-recycling technology even if it is only used for depositing cash,” PNC’s Justice said. “Cash-recycling technology jams far less and offers much greater capacity than traditional cash-deposit devices. As soon as my software supports cash recycling, this is all I will buy.”

“Cash recycling performs best when paired with a solid cash supply chain management strategy and capability to maximize the value of the technology,” Citi’s Trocmé said. “Citi plans to leverage recycling technology and has already deployed terminals with recyclers in various configuration options based on inbound and outbound cash movements. As we operate in different markets around the world, our approach is market-specific.”

China’s GRG Banking estimates that use of a cash-recycling machine (CRM) can reduce the daily cost of operating an ATM by 18 percent to 25 percent. A CRM could save a bank \$948,000 per year per 100 ATMs, it estimates.

Source: ATM Marketplace white paper “Four Questions Financial Institutions Should Ask about Cash Recycling,” sponsored by GRG Banking

CONCLUSION

ATMs and self-service systems remain crucial for the future of financial retail delivery.

The need to deliver financial transactions and services in a cost-effective manner both in bank branches and in remote locations will require an increased commitment by banks to fully embrace the use of all types of self-service systems. Those systems include standard cash dispensers, advanced-function ATMs, new systems such as KAL's RTM and mobile devices such as smartphones and tablet computers.

However, those systems do not exist in a vacuum. It is critical for banks to adopt the right software strategy and technology to integrate all of their systems and to support all types of self-service systems.

It's not enough to perfect a service offering in one country, one city or one neighborhood. Whether located in the center of London, Tokyo or New York, those systems need to recognize customers in the same way they do in a customer's local branch or neighborhood grocery store. Customers now demand that their banks deliver all financial transactions and services with a great, personalized user interface — whenever and wherever they want access to their accounts.

At the same time, those systems need to be able to deliver the functions that are most applicable for that part of the world, whether it is cash recycling in Asia, mobile integration in Africa or the growing use of check-imaging technology in the U.S. What ties those systems together, and what can give FIs the competitive edge they seek, is the software driving those systems. The right software allows FIs to choose the hardware that meets their needs for a particular service offering while ensuring consistent branding across a variety of delivery channels.

We at ATMmarketplace.com hope you find the “2014 ATM Software Trends and Analysis” guide useful in planning your software strategy. In closing, we would like to extend our thanks to KAL for allowing us to continue bringing this publication to you at no cost.



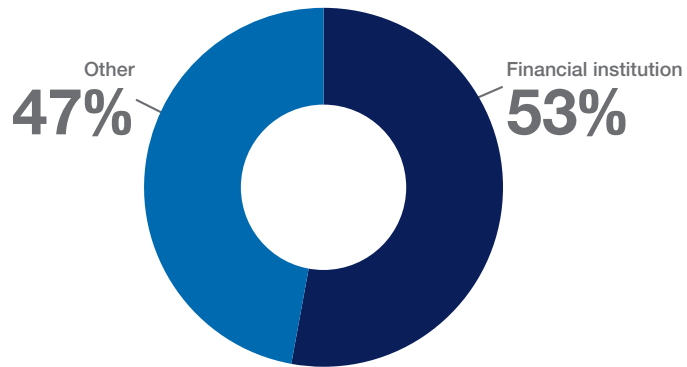
APPENDIX 1

Analysis of financial institution survey results

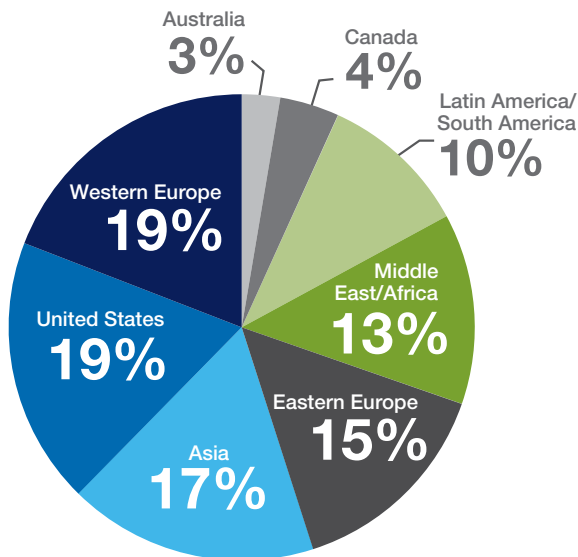
Financial institutions

1. Please identify your industry segment.

The 2014 survey received answers from 730 respondents, of which 386 were financial institutions.

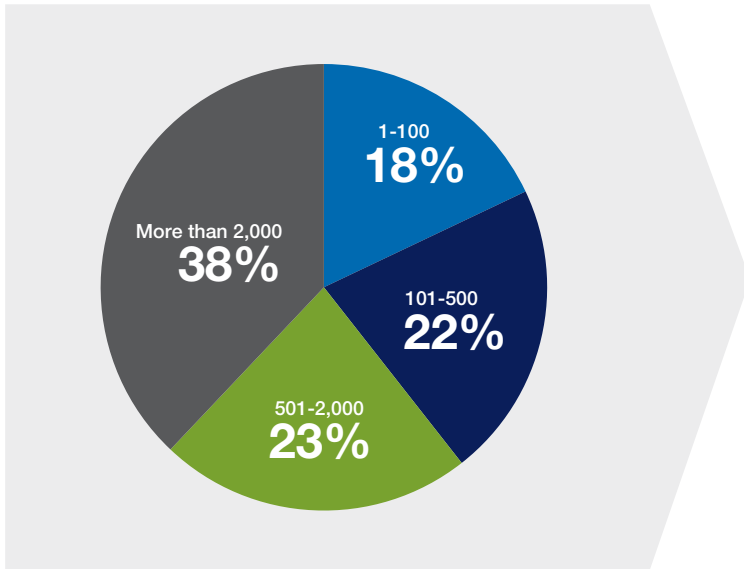


2. Regional breakdown of financial institution respondents (percent)

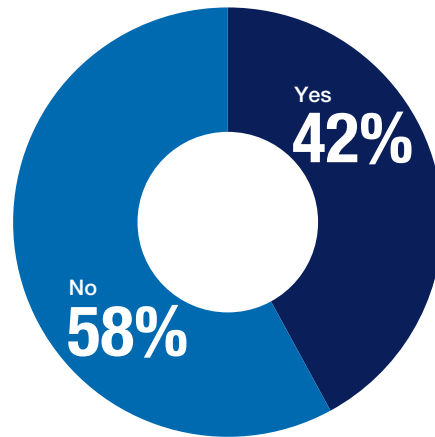


The regional breakdown of FIs has remained largely unchanged since 2013, with the exception of U.S.-based FIs, whose participation declined from 25 percent in 2013 to 18.5 percent in 2014.

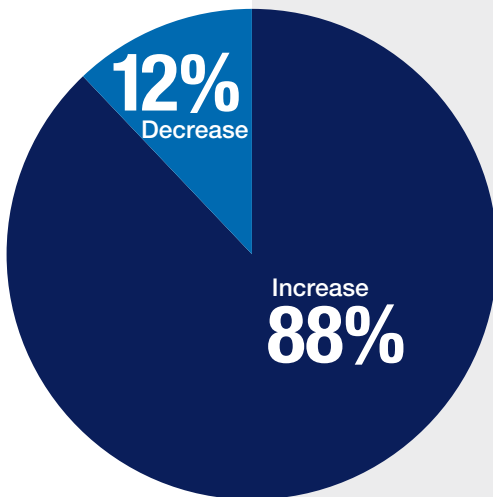
3. How many ATMs are in your fleet?



4. Do you plan to substantially change the size of your ATM fleet in 2014?



5. How are you planning to change the size of your ATM fleet?



Asked how they plan to change the size of their ATM fleets, 87.9 percent said they plan to increase their ATM fleets, and 12.1 percent plan to decrease their ATM fleets.

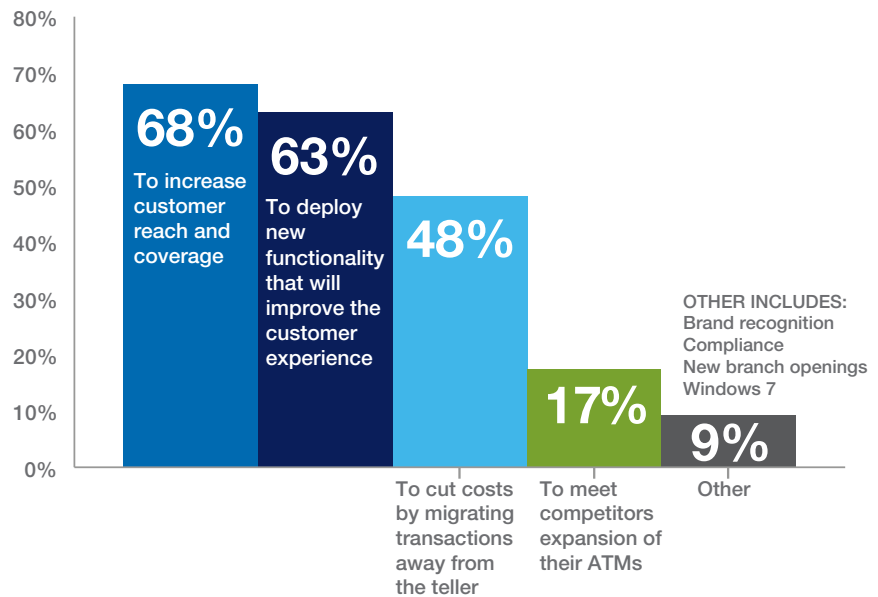
Increasing ATM fleets ties in with branch rationalization programs and the drive to increase self-service. In the U.S., for example, a growing number of banks are closing branches as transactions migrate to ATMs.

“The problem in the U.S. is that up to 50 percent of bank customers don’t bank online,” said CR2’s Dolan. “They prefer to do their banking in the branch. So, if their branch closes, their bank will need to provide them with access to ATMs that offer the services and transactions they used to get in the branch.”

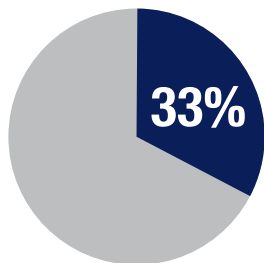
6. What are your reasons for deploying new ATMs?

Increasing customer reach and coverage and adding new functionality to improve the customer experience are the dominant reasons for deploying new ATMs.

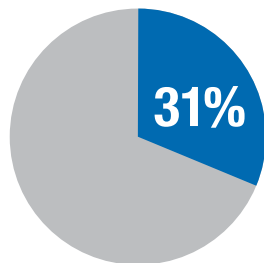
“Offering a better customer experience is a very important priority for ATM deployers,” said Robert Johnston, NCR Financial Services’ software marketing director.



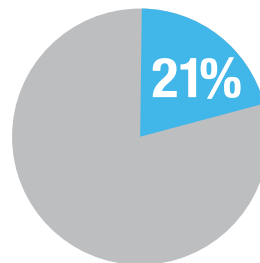
7. Which statement best identifies your organization’s ATM software strategy?



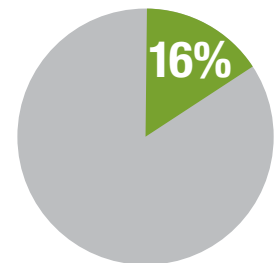
We have one standardized ATM software environment on ATMs from multiple manufacturers (multivendor software)



We use the software supplied by the manufacturer (i.e. NCR software on NCR ATMs, Diebold Software on Diebold ATMs) and see no need to change



Our ATM software and hardware is from a single manufacturer



We have software supplied by the ATM manufacturer(s) but are considering multivendor ATM software

Mergers and acquisitions among FIs as well as changing ATM models mean many deployers are operating ATM fleets comprising models from a number of manufacturers.

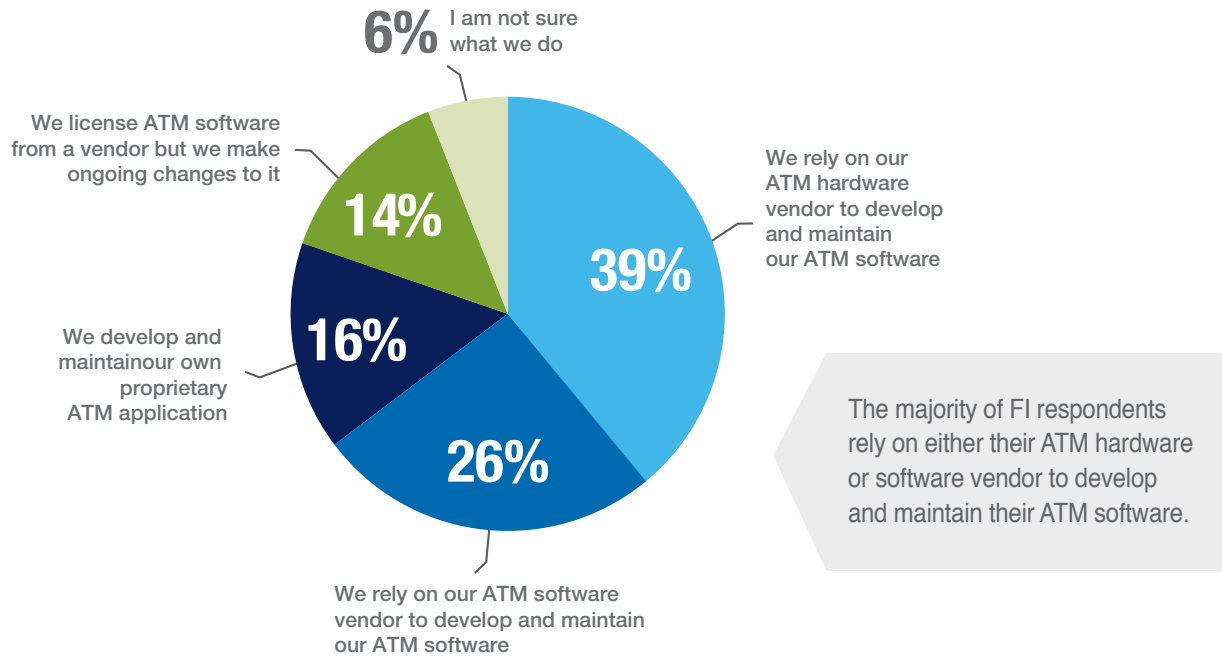
In 2014, 20.6 percent of FI respondents source their ATM hardware and software from a single supplier, compared with 22.6 percent in 2013.

The 2014 survey also identified a small decline in the percentage either running or considering running multivendor software compared with 2013.

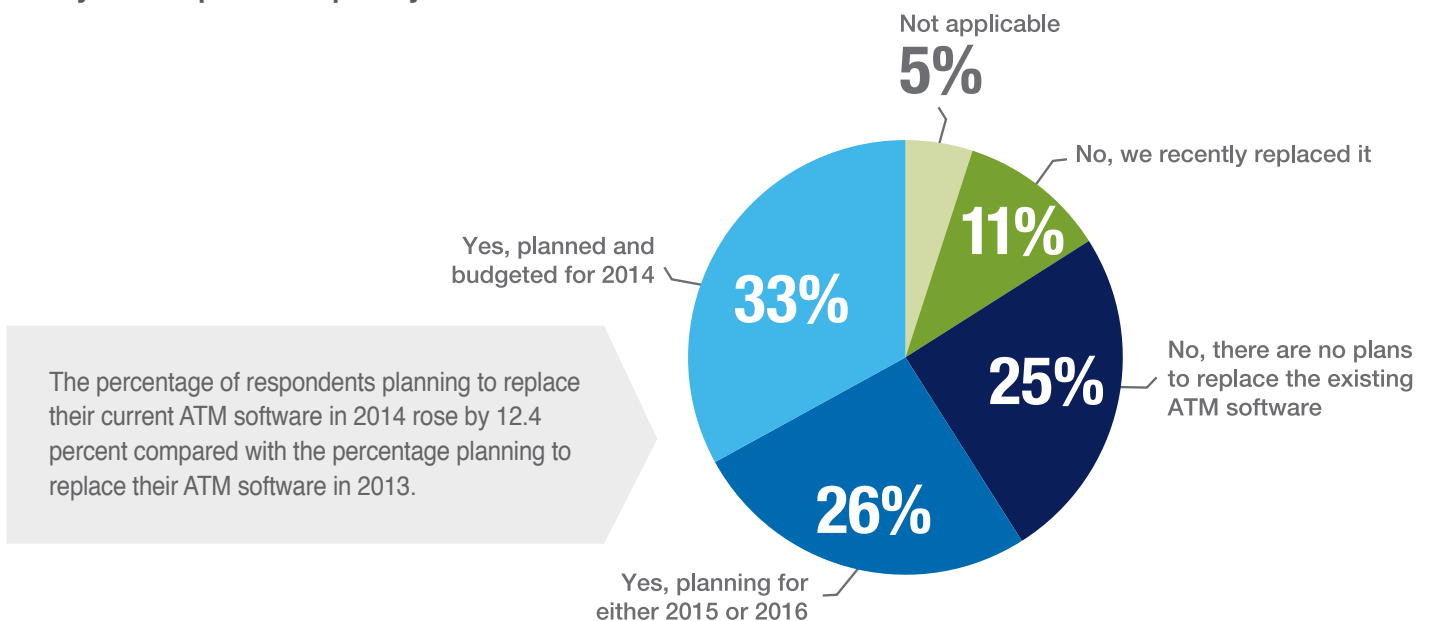
A third (32.6 percent) run multivendor software in a standardized ATM software environment on ATMs from multiple manufacturers, compared with 35 percent in 2013.

In 2014, 15.6 percent of respondents are considering running multivendor software, down from 20.1 percent in 2013. Also, 31.2 percent see no need to change their current policy of using the software supplied by their ATM manufacturer. In 2013, 22.3 percent said they saw no need to change their policy of using only their ATM manufacturer’s software.

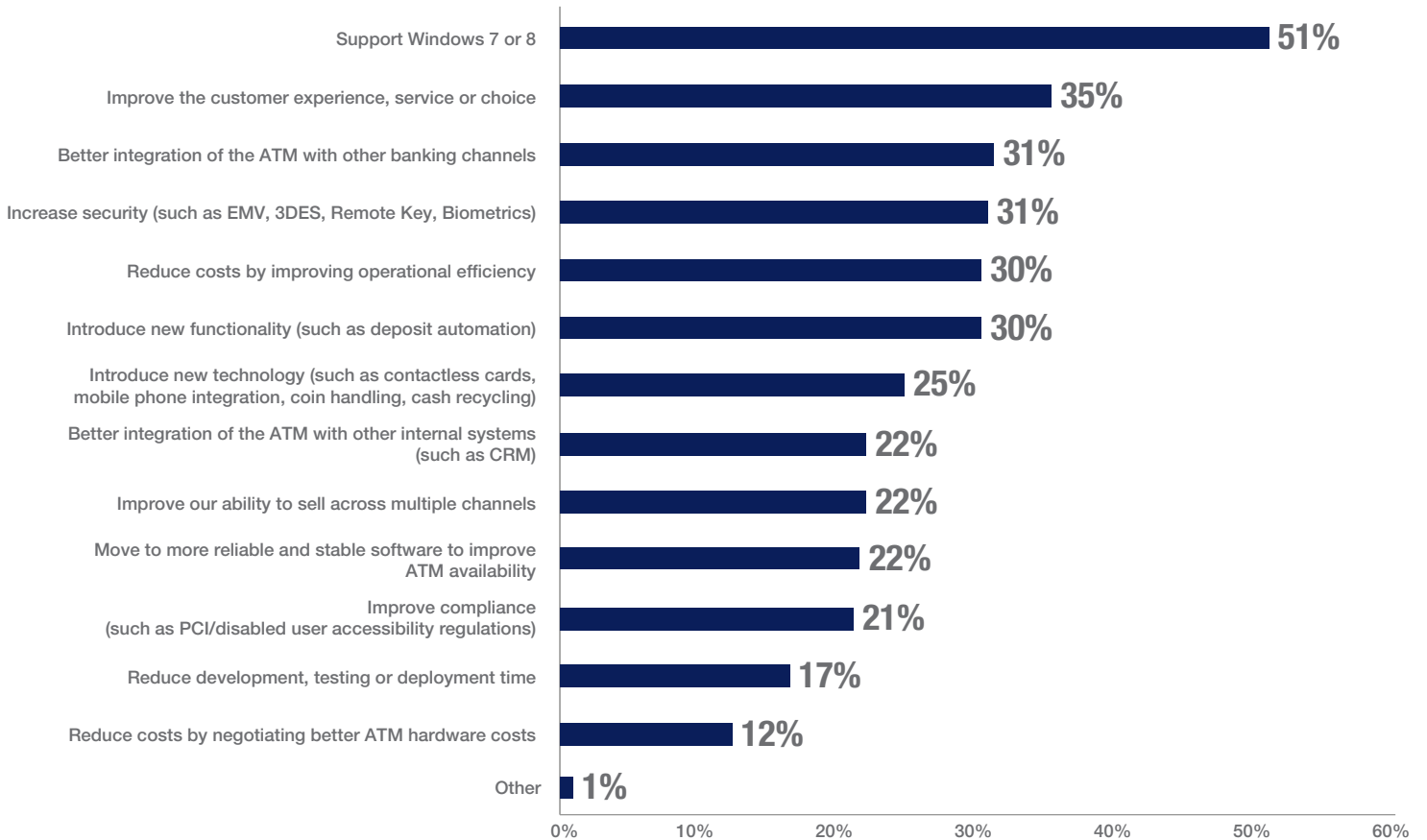
8. Which statement best identifies your organization's approach to the development of ATM software?



9. Do you have plans to replace your current ATM software?

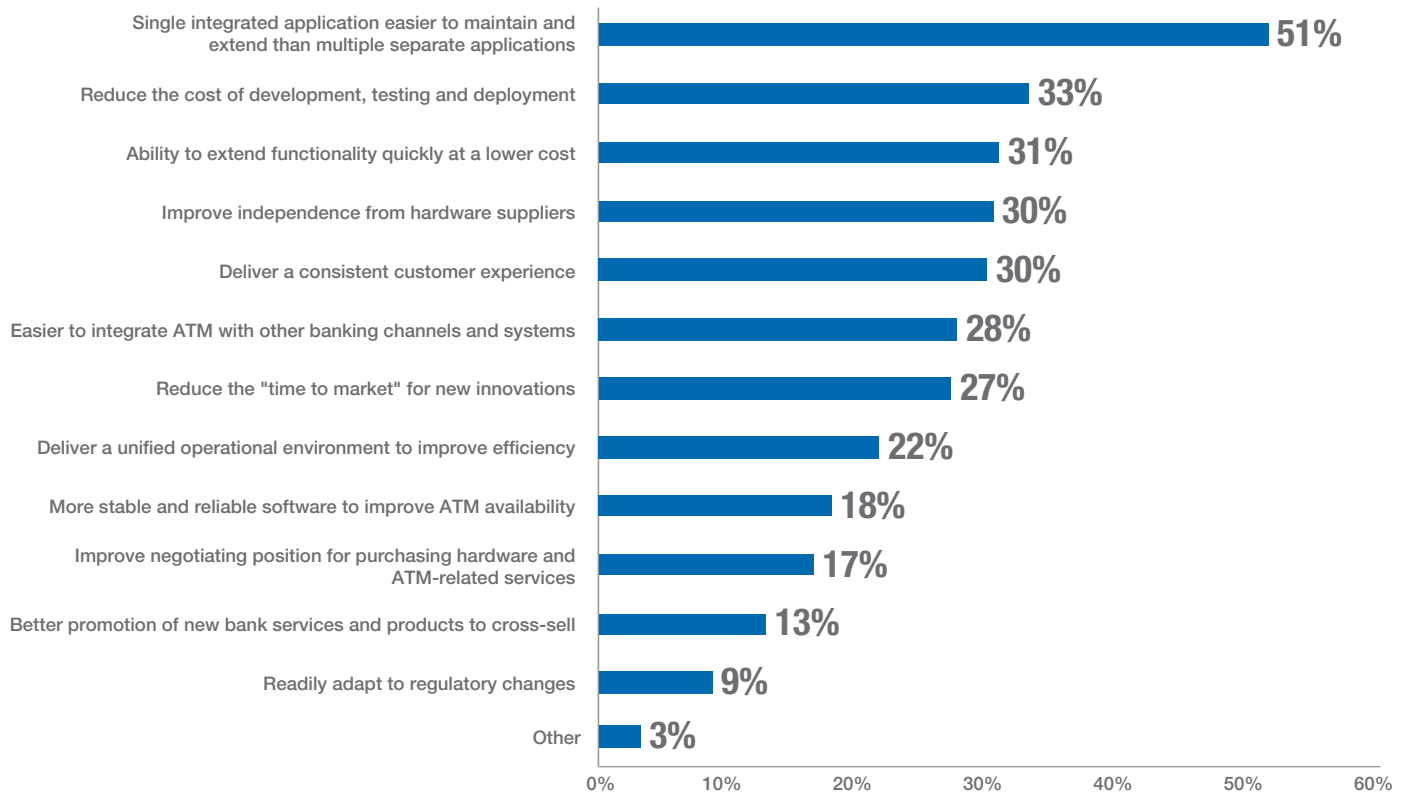


10. What are your primary drivers for changing ATM software? (select up to THREE options)



Supporting Windows 7 or 8 is the top driver for changing ATM software, identified by 50.9 percent of 2014 FI respondents. Improving the customer experience, better integration with other banking channels and increasing security also are important drivers for buying new ATM software.

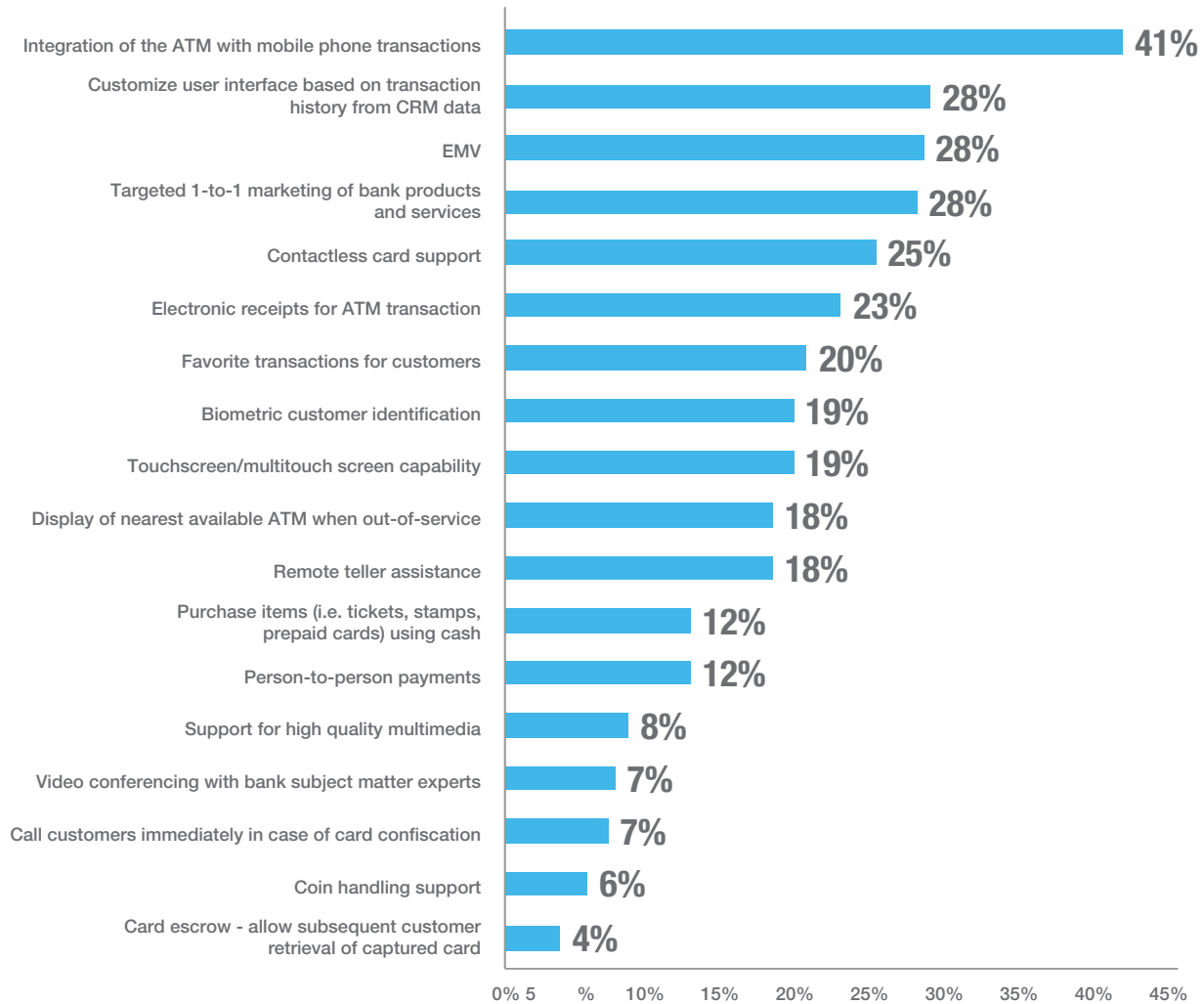
11. What do you consider to be the main benefits of moving to a single standardized ATM software environment (multivendor ATM software)? (select up to THREE options)



Just over half (51.4 percent) of respondents in 2014 identified easier application maintenance and extension as a key benefit of moving to a single ATM software environment. The ability to extend functionality quickly at a lower cost was identified as a key benefit by 30.7 percent of respondents.

The ability to provide a consistent experience across a deployer's ATM fleet without being constrained to one manufacturer, reducing costs in the process, is another key benefit of choosing multivendor software.

12. What are the most important new functionalities that you would like to introduce to your ATM fleet? (select up to THREE options)

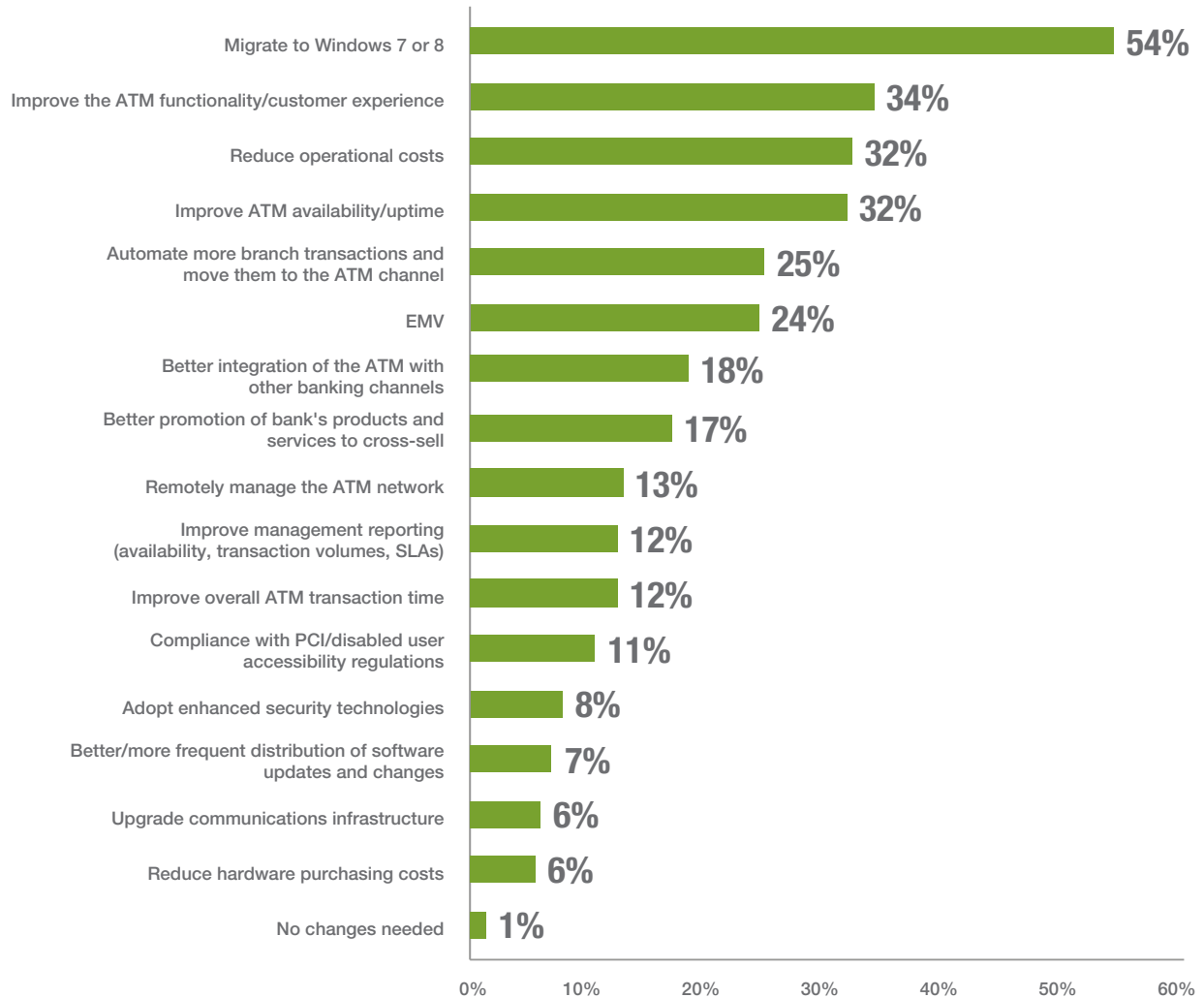


Integration with mobile phone transactions by far was seen as the most important new functionality for ATMs, identified by 41.3 percent of 2014 FI respondents. EMV migration, customized user interfaces based on transaction history, targeted one-to-one marketing and contactless card support also were seen as important new functionalities.

While 17.9 percent of respondents identified remote teller assistance as an important functionality that they want to introduce at their ATMs, only 7.3 percent identified videoconferencing with bank subject matter experts as an important new functionality. The 2013 survey also found that videoconferencing at ATMs has yet to gain traction with FIs.

FI respondents in 2014 displayed low levels of interest in selling items such as stamps or prepaid cards and in offering P2P transfers at their ATMs.

**13. What are the most critical changes your organization needs to make to its ATM fleet in 2014?
(select up to THREE options)**



With Microsoft ending security updates for Windows XP on April 8, 2014, migration to Windows 7 or 8 was seen as the most critical change that FIs need to make to their ATMs in 2014. Only 22.3 percent of respondents identified Windows migration as critical in 2013, compared with 54.1 percent in 2014.

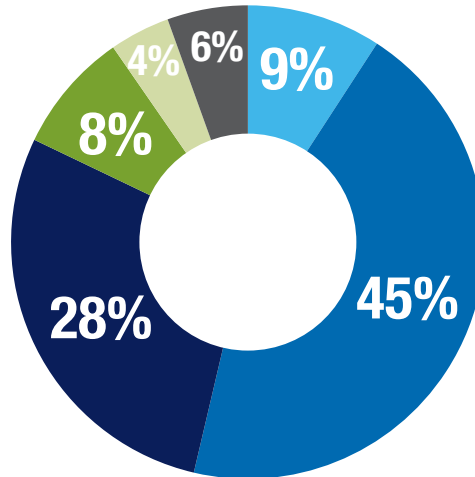
In both the 2013 and 2014 surveys, improving ATM functionality and customer experience was identified by a third of FI respondents as critical. As the ATM increasingly becomes the primary touchpoint between banks and their customers, improving the customer's experience is rising in importance.

Other critical changes identified by 2014 FI respondents include improving ATM uptime and reducing operational costs.

14. Which statement best identifies your organization's strategy regarding ATM migration to Windows 7?

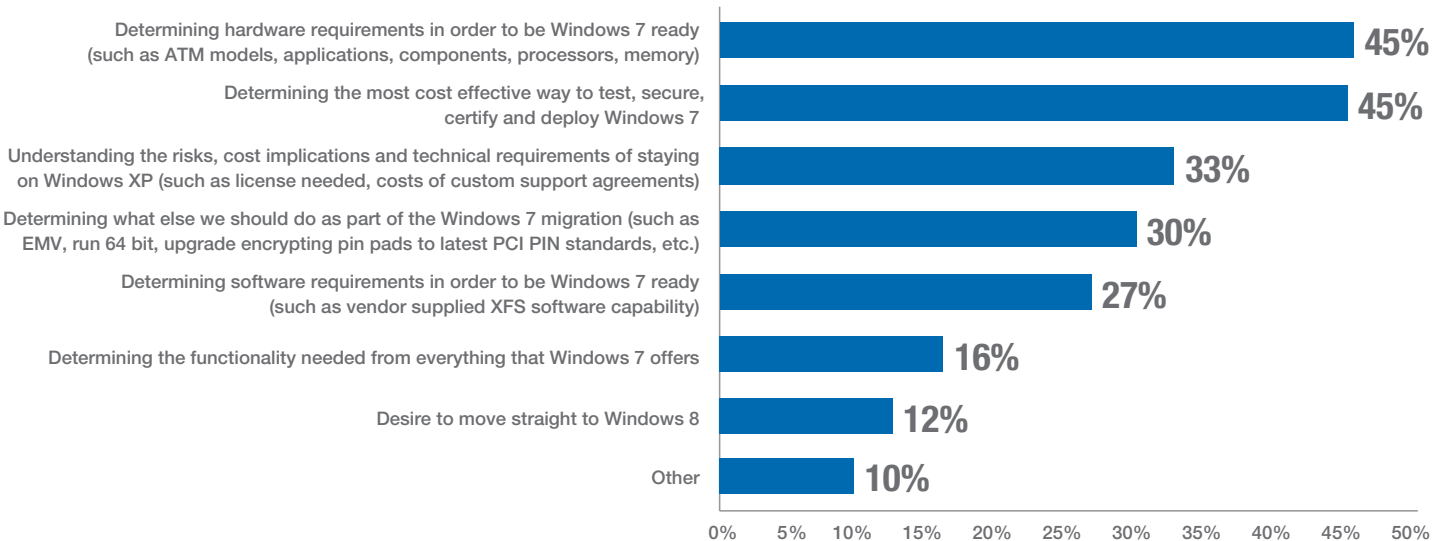
"Other" includes "already migrated to Windows 7" and "still under discussion."

Reflecting the urgency of meeting PCI (payment card industry) compliance rules, which require ATM deployers to keep their operating systems updated with security patches, nearly half (44.5 percent) of respondents intend to migrate to Windows 7 in 2014.



- We will stay on Windows XP for the foreseeable future
- We will migrate to Windows 7 in 2014
- We will migrate to Windows 7 in 2015 or 2016
- We would prefer the option to move directly to Windows 8
- We would like to have the choice of running a non-Windows operating system (i.e. Linux)
- Other

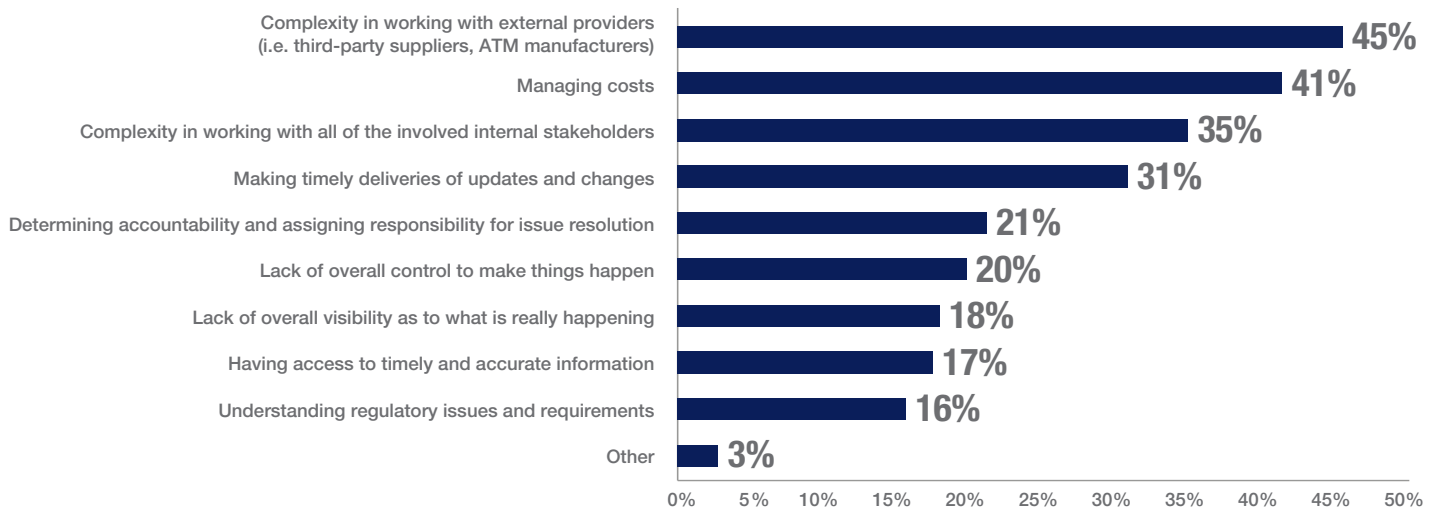
15. What are your most frustrating issues regarding migration to Windows 7? (select up to THREE options)



"Other" includes the certification process, coordination between vendors, cost of upgrades, hardware manufacturers not being ready and speed of migration.

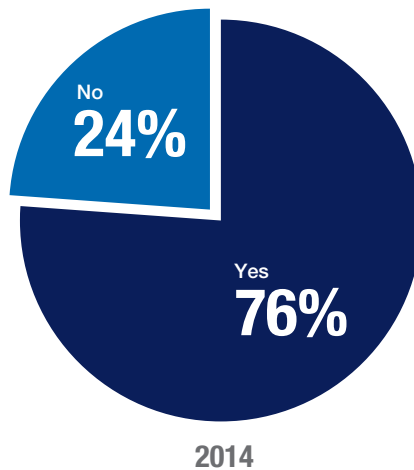
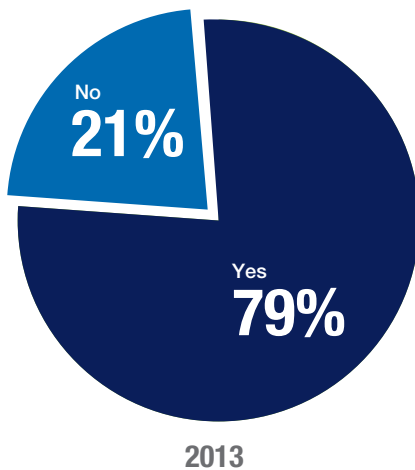
Determining hardware requirements for Windows 7 compliance — followed by determining the most cost-effective way to test, secure, certify and deploy Windows 7 — is the most frustrating Windows 7 migration issue for FI deployers in 2014.

16. What are your most frustrating issues when trying to deliver the ATM channel objectives for your organization? (select up to THREE options)



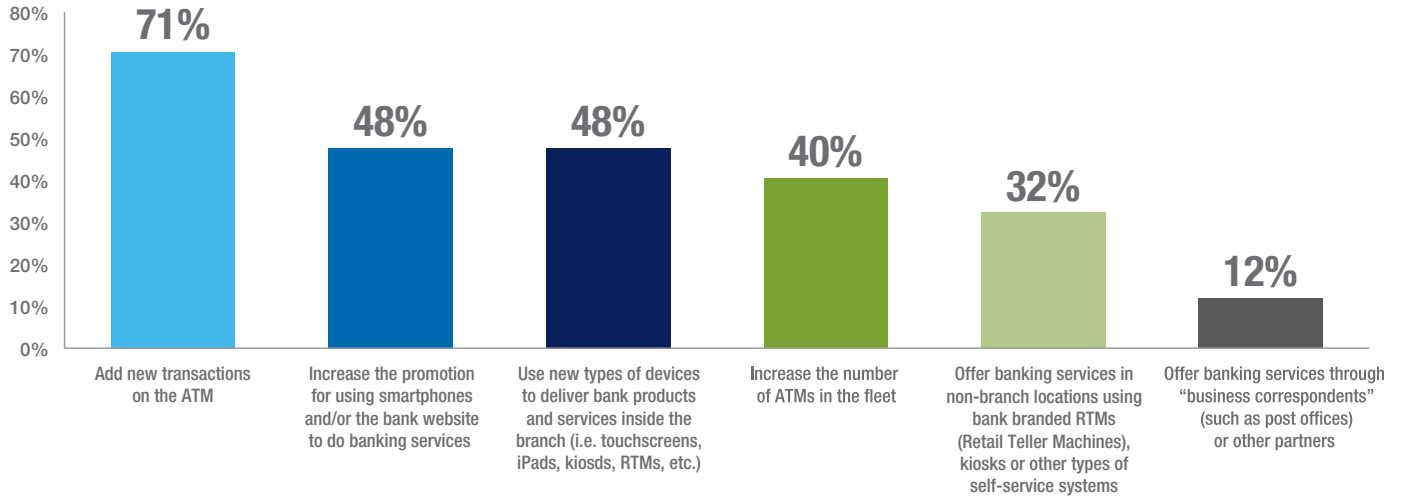
The complexity of working with external providers and internal stakeholders, while managing costs, is among the most frustrating ATM channel issues for FI deployers in 2014.

17. Is it a near-term priority for your bank to extend your use of self-service to deliver new or additional products and services?



The percentage of banks planning to extend their use of self-service technologies remained largely unchanged this year from 2013.

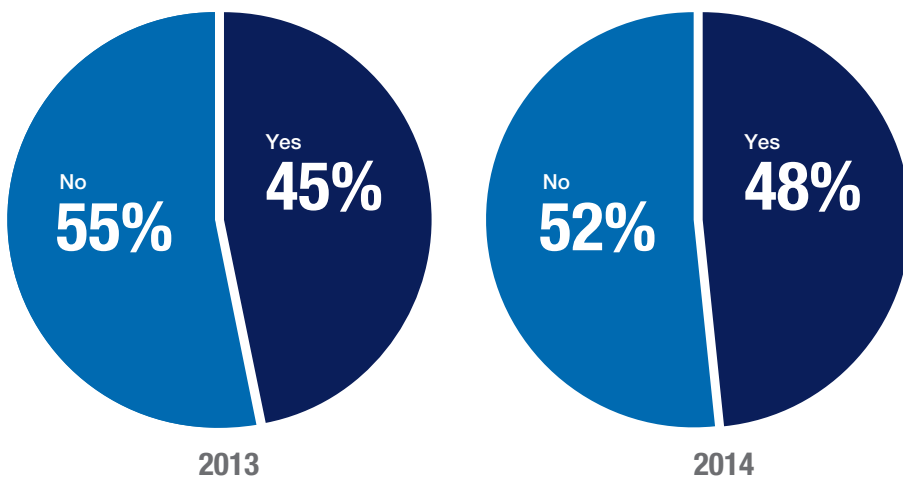
18. What plans do you have for extending the use of self-service? (select all that apply)



Nearly three quarters (70.6 percent) of FI respondents plan to add new transaction types to their ATMs, up from 58.2 percent in 2013.

Consumers increasingly expect to be able to interact with all types of technology in the same way they interact with their smartphones. FIs are looking for ways to incorporate those types of interactions into the ATM transaction.

19. Do you currently have "branch of the future" activities where you test new types of self-service technologies?



One of the dominant industry terms in recent years has been "branch of the future." Nearly half (48.4 percent) of FI respondents are thinking about the changing nature of the bank branch when they test new self-service technology.

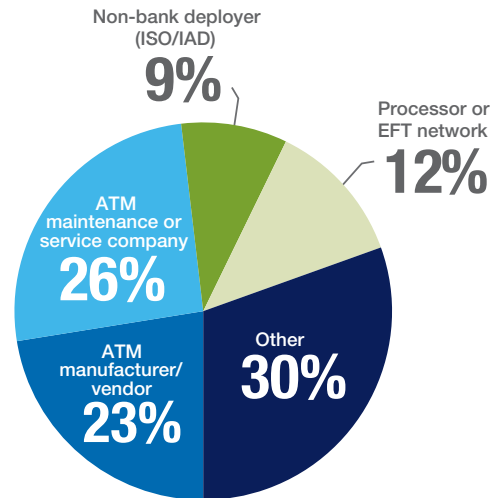
APPENDIX 2

Analysis of survey results from vendors/IADs/service companies

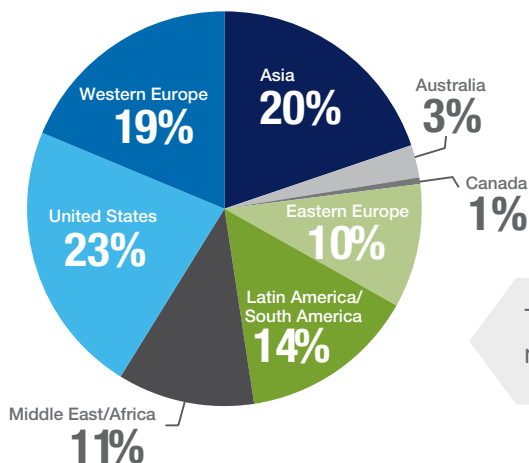
The 2014 survey received responses from 184 non-financial institution participants in the ATM industry. These organizations include independent ATM deployers (IADs), software and hardware vendors, systems integrators and companies that provide maintenance services.

1. Please identify your industry segment.

“Other” includes analysts, ATM security firms, consultants, software vendors and system integrators.

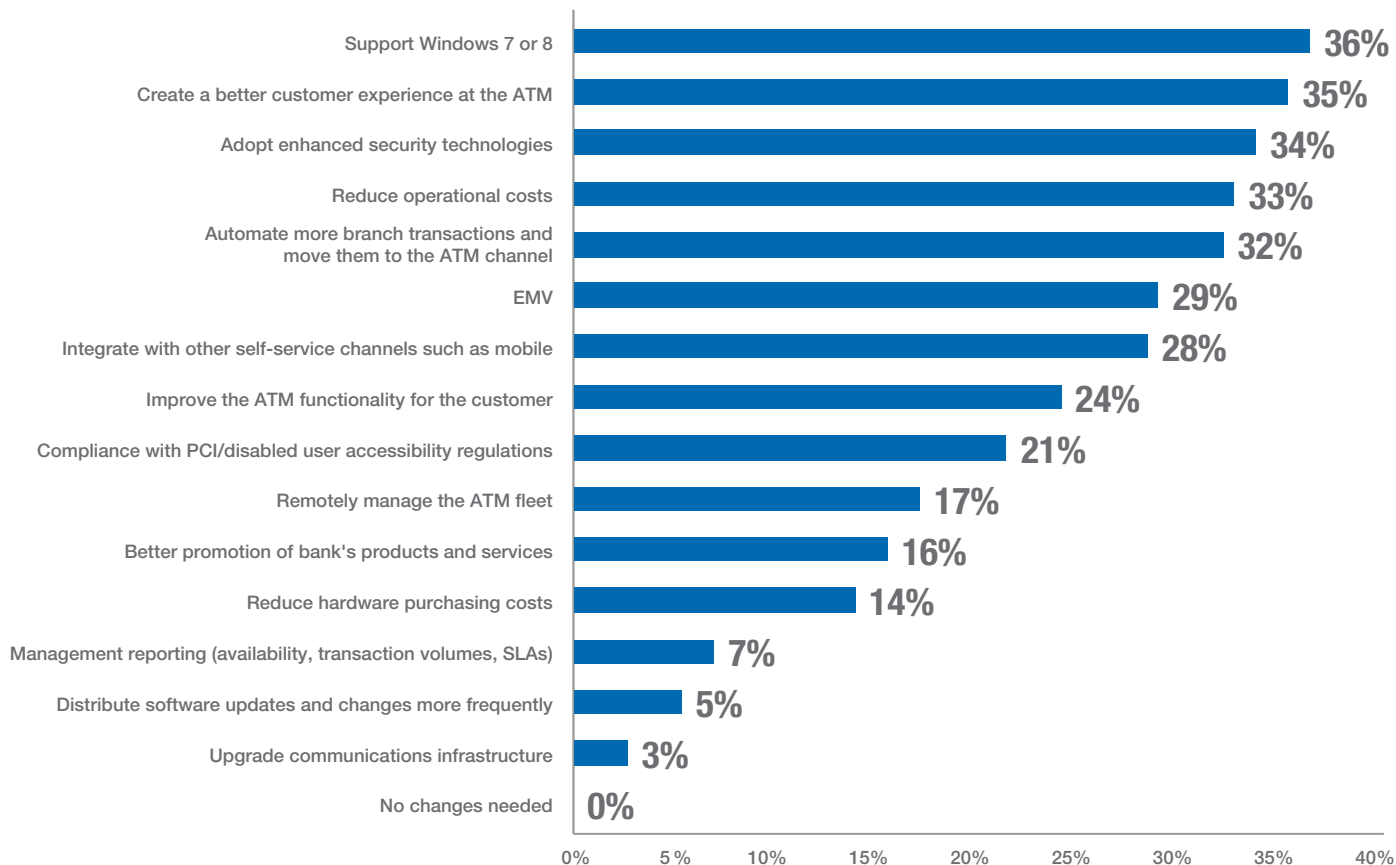


2. In what global region is your headquarters located?



The geographical breakdown of non-FI respondents is largely unchanged since 2013.

3. What are the most critical changes you anticipate your customers wanting to make to their ATM fleets in 2014? (select up to THREE options)



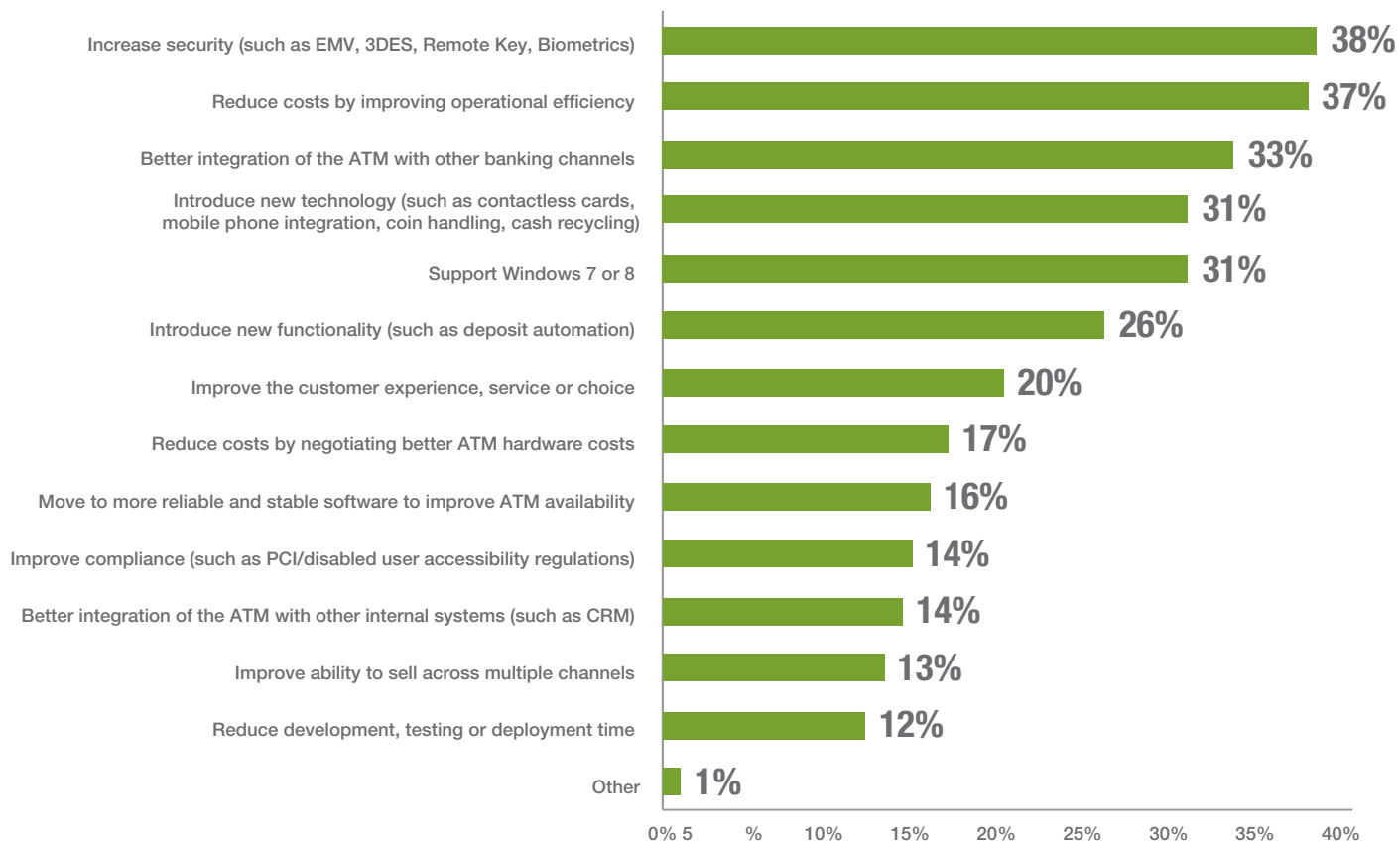
*The 2013 survey did not include a question about EMV.

Supporting Windows 7 or 8 is the most critical change ATM deployers are looking to make to their ATM networks in 2014, according to 36.4 percent of non-bank respondents. Creating a better customer experience at the ATM was second, with 35.3 percent, followed by the adoption of enhanced security technologies, at 33.7 percent.

The percentage of respondents identifying the need by their customers to cut operational costs as the most critical change fell to 32.6 percent in 2014 from 45.1 percent in 2013.

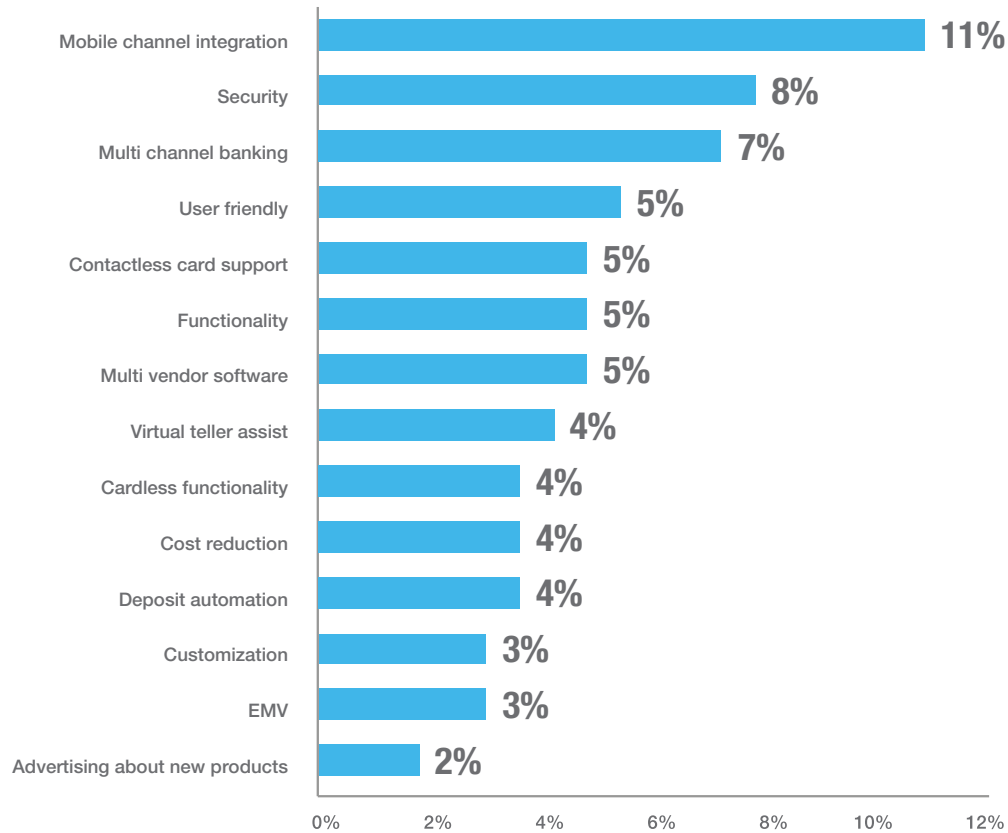
Integration with other self-service channels was identified as a critical change for their customers by 28.3 percent of respondents in both 2013 and 2014.

4. What do you consider to be the primary drivers for your customers changing their ATM software? (select up to THREE options)



Increasing security through the use of EMV, 3DES, remote keys and biometrics topped the list of drivers for changing ATM software in 2014, according to 38 percent of non-FI respondents. Reducing costs by improving operational efficiency came in second, with 37.4 percent, followed by better integration of ATMs with other banking channels, with 33.2 percent.

5. What new features do you believe your customers desire from their ATM software?

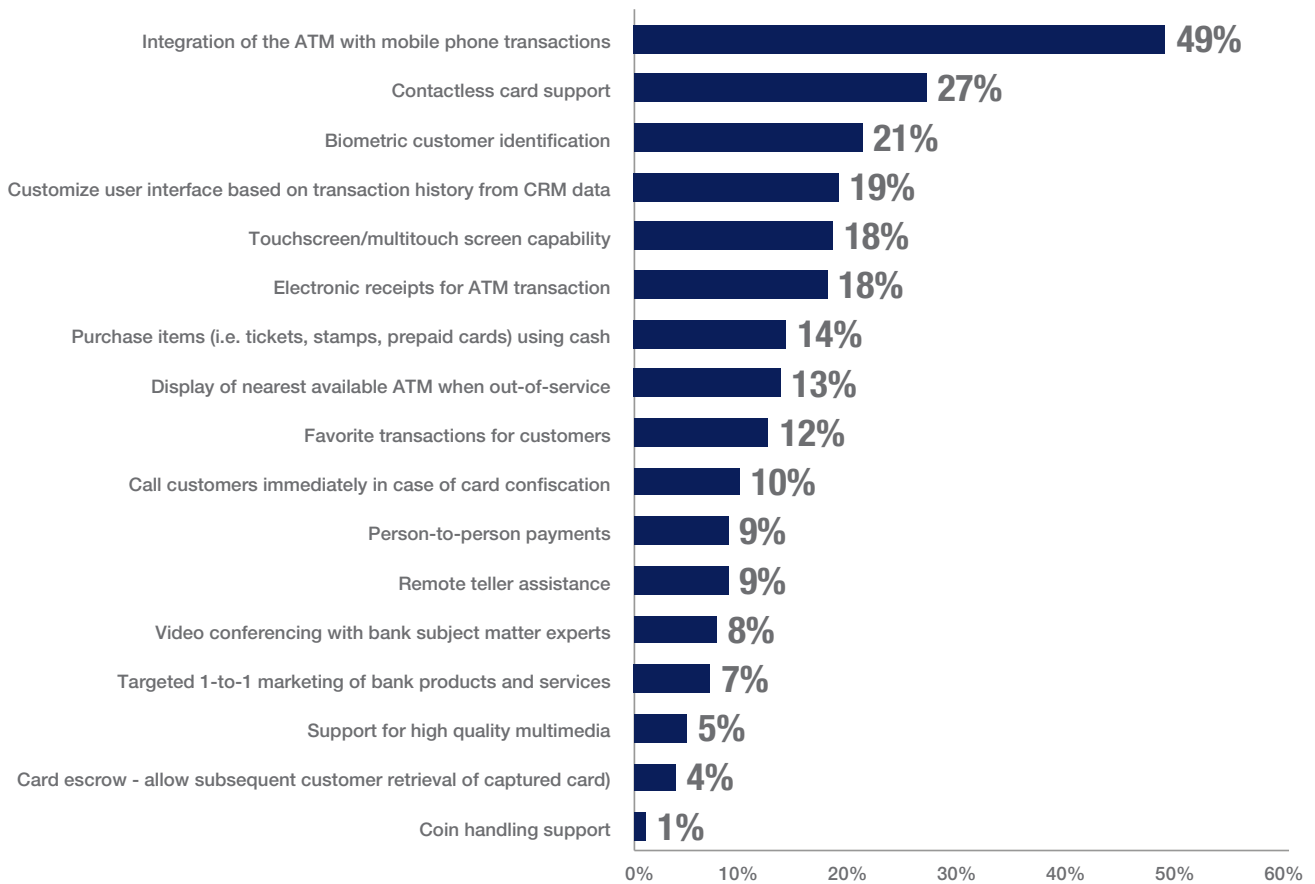


Other desirable features identified by respondents include bill payments, biometric authentication with iris or fingerprints, cash recycling, remote teller assistance, the sale of digital goods, QR-code scanner support, touchscreens, third-party payments and coin recycling.

Just over a tenth (10.8 percent) of 2014 respondents identified mobile channel integration as an ATM software feature desired by their customers.

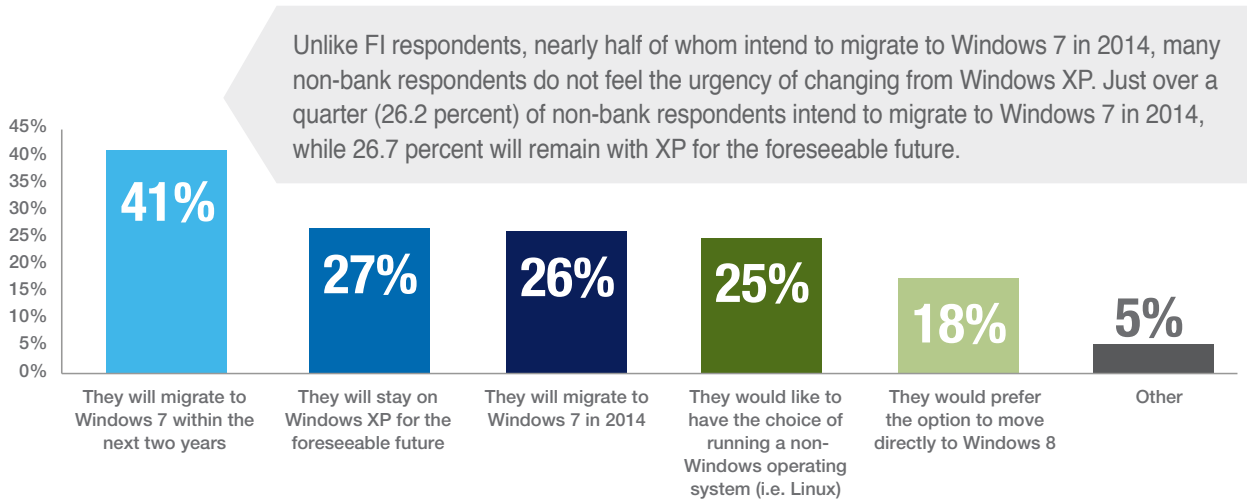
In addition, 7.8 percent of respondents identified security as a desirable new ATM software feature, followed by 7.2 percent identifying multichannel banking capability, 4.8 percent identifying contactless card support, 4.8 percent identifying multivendor software and 4.2 percent identifying virtual teller assist.

6. What do you consider to be the most important future capabilities of the ATM channel that would improve the customer experience? (select up to TWO options)

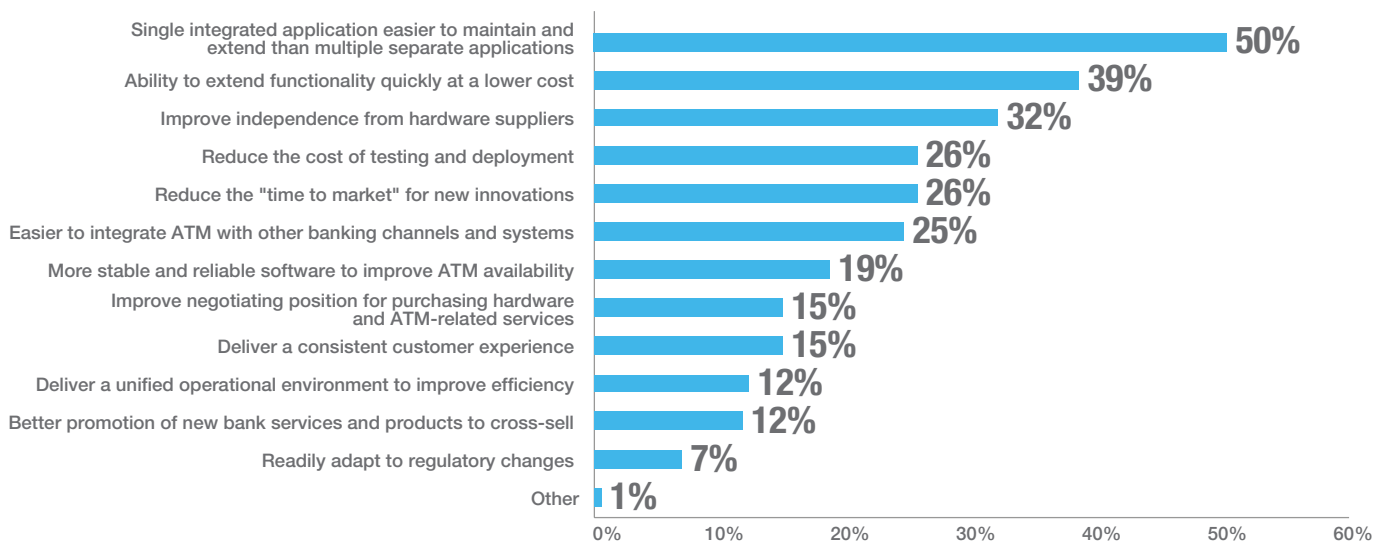


Integration of the ATM with mobile phone transactions was identified as the most important future ATM capability that would improve the customer's experience in both the 2013 (44.6 percent of respondents) and 2014 surveys (48.7 percent of respondents). In 2014, contactless card support came in second, with 26.7 percent of respondents, followed by biometric customer identification, with 20.9 percent of respondents.

7. Which statements best identify your customer's opinions regarding the future direction of the ATM operating system environment? (select up to TWO options)



8. What do your customers consider to be the main benefits of moving to a single ATM software environment? (select up to THREE options)

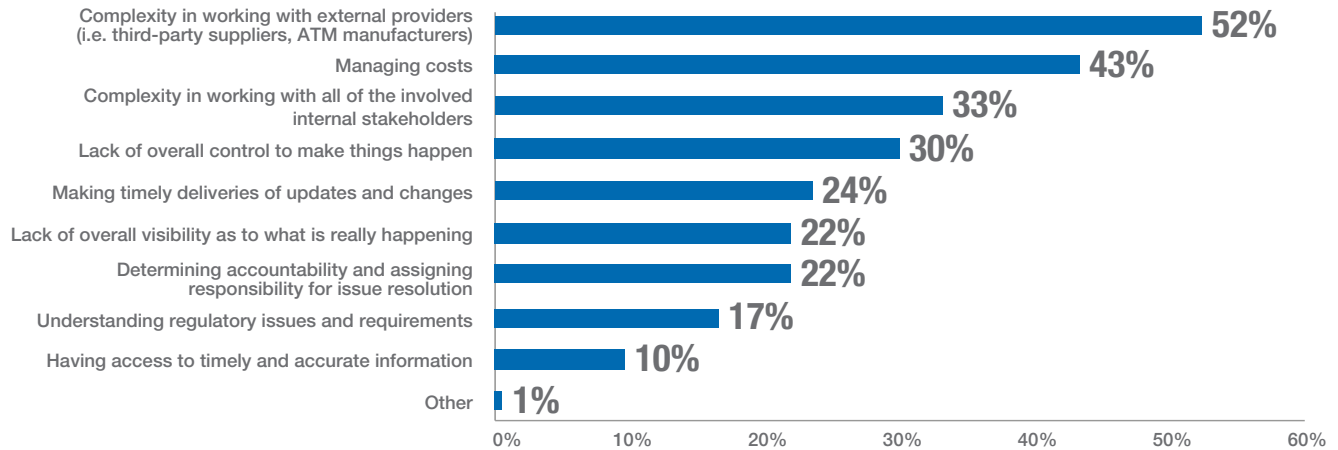


Half (50.3 percent) of 2014 respondents identified easier application maintenance and extension as a key benefit of moving to a single ATM software environment. The ability to extend functionality quickly at a lower cost was identified as a key benefit by 38.5 percent of respondents.

In the wake of changing technology and the number of bank mergers

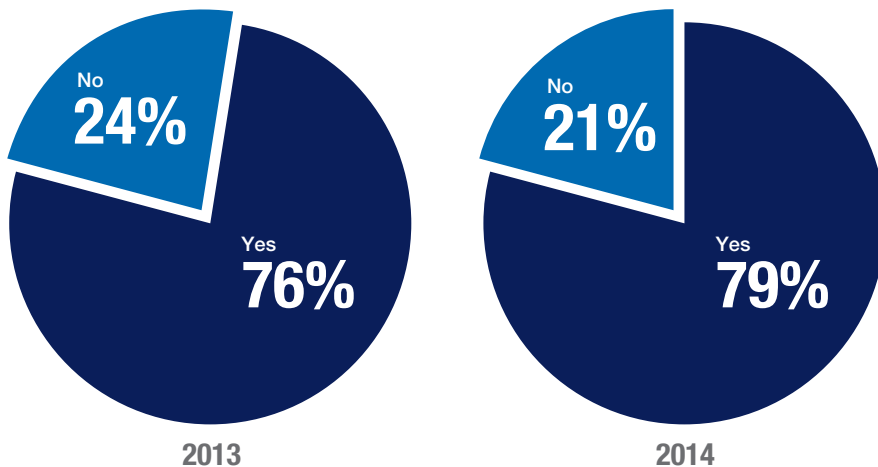
that have taken place over the last few years, FIs are faced with a double conundrum: enhancing ATM functionality across a variety of ATM makes and models while keeping costs in line. Part of that cost management involves being able to negotiate freely with vendors without being locked into one particular model. The obvious way to accomplish those goals is through a single standardized ATM software environment.

9. What are your customers' most frustrating issues when trying to deliver the ATM channel objectives? (select up to THREE options)



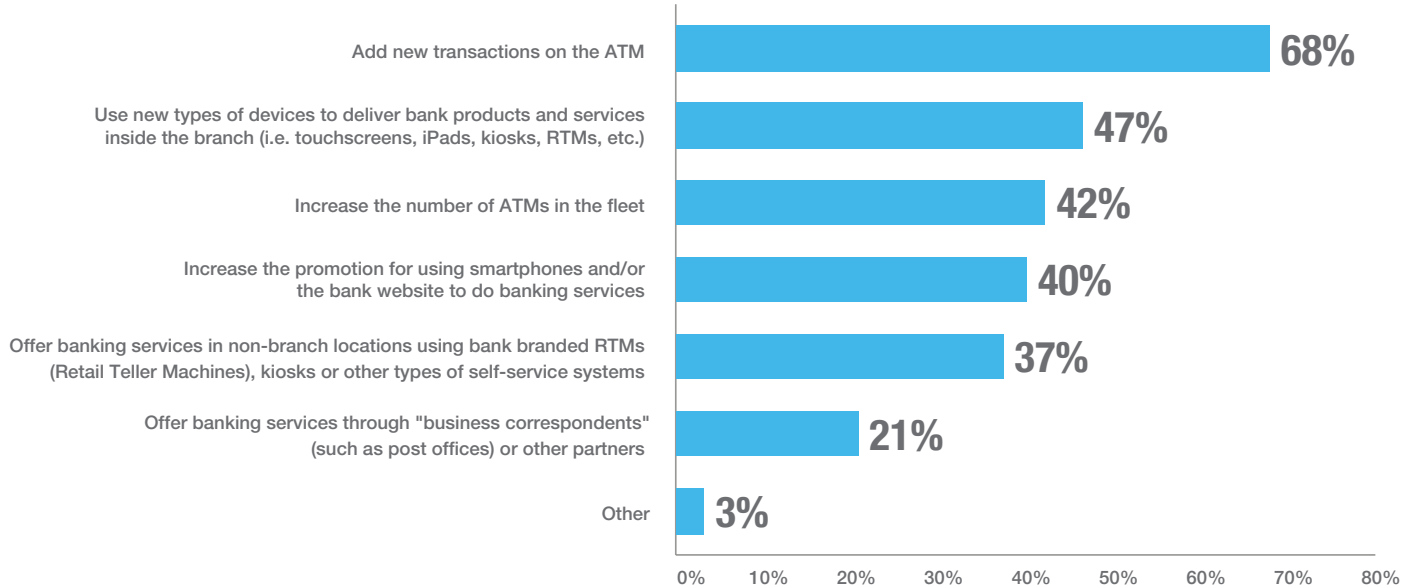
Over half (52.4 percent) of 2014 non-bank respondents identified the complexity of working with external suppliers as their most frustrating ATM channel issue. Managing costs came in second, with 43.3 of respondents. In 2013, managing costs came in first, with 48.6 percent, followed by the complexity of working with external suppliers, with 45.6 percent.

10. Is it a near-term priority for your customers to extend their use of self-service to deliver new or additional products and services?



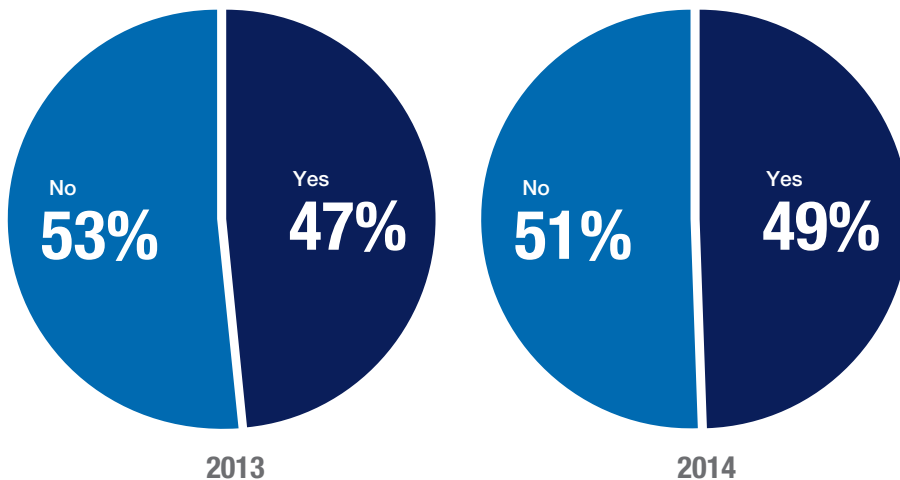
The percentage of customers for whom extending their use of self-service technology is a near-term priority is largely unchanged from 2013.

11. What plans do your customers have for extending their use of self-service? (select all that apply)



Adding new transactions at the ATM is a priority for two-thirds (67.9 percent) of 2014 respondents. Nearly half (46.5 percent) of respondents plan to deploy new devices such as touchscreens, tablets, kiosks and retail teller machines (RTMs) inside branches, while 42.2 percent plan to extend their ATM fleets.

12. Do your customers currently have "branch of the future" activities where they test new types of self-service technologies?



Nearly half (49.4 percent) of 2014 respondents said their customers have "branch of the future" activities, largely unchanged from the 2013 survey.

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U.S. EMV Migration: What You Need to Know

Welch ATM

<http://www.welchatm.com/>

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An independent company, KAL is recognized as the world's leading ATM software company, providing solutions to some of the world's megabanks, such as Citi, China Construction Bank and UniCredit. KAL's software is installed and supported around the world in more than 80 countries, enabling banks of all sizes to reduce costs and improve competitiveness.



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