



ATM Future Trends 2017



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FORWARD

Welcome to the 5th edition of the biannual ATM Future Trends report. Within its pages, you'll find a wealth of information intended to help you establish achievable goals and strategies for your ATM channel or business over the next few years.

This report includes results from our survey of more than 300 ATM industry members at all corporate levels, as well as our surveys of more than 1,000 ATM end-users in the United Kingdom and the United States.

You'll find interesting differences in our two consumer groups that highlight the variation in behaviors and priorities from market to market.

Because of this, we've also included a breakout of deployer trends for major global market, as well.

You'll see notable differences between all groups, but also many similarities.

It deserves mentioning that this 2017 report comes at an important juncture for the ATM and the ATM industry.

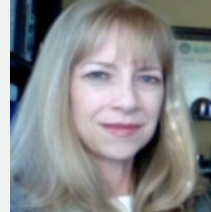
For a start, this year marks the golden anniversary of the ATM. It was 50 years ago — June 27, 1967 — that the first cash-dispensing machine went live at Barclays Bank in London's Enfield borough.

From this inaugural installation, an entire industry has grown, with the result that, today, you'll find ATMs everywhere — in fact, 3 million of them in installations all over the world, from the most populous cities to the loneliest outposts, including a mountaintop in the Himalayas.

As they've increased in number, ATMs have also stepped up impressively in sophistication. Today's ATMs are a far, far cry from that first installed De La Rue machine.

Of course, they still dispense bank notes around-the-clock, but many of them perform transactions no one imagined automating 50 years ago. Besides dispensing cash down to the penny, today's advanced machines can:

- issue passbooks, prepaid cards, stamps and lottery tickets;
- accept deposited cash and checks;
- grant loans and take payments of almost any kind;



Suzanne Cluckey
*senior editor,
ATM Marketplace*

Suzanne Cluckey is a writer with more than 25 years of experience in journalism and mass communications. Her work has appeared in trade journals and consumer publications throughout the U.S. and she has covered a vast range of topics from cider-making to software development. In addition to her work for ATM Marketplace (and Fast Casual), she has written white papers and features for other publications in the Networld Media Group family including FastCasual, Kiosk Marketplace, Mobile Payments Today, QSRweb and Virtual Currency Today.

- calculate and convert one nation's currency into another — and dispense both from the same safe;
- put an account holder directly in touch with a live-remote teller at any time day or night;
- remit money to a relative halfway around the world; and most impressively,
- perform these and other functions too numerous to mention here with better than 99 percent reliability.

However ... it is also true that operators of these amazing machines face challenges that no one thought much about 50 years ago either, including:

- the cost of competitive upgrades;
- expenses related to compliance with government regulations and network rules;
- pressure from governments and groups to reduce or eliminate fees and surcharges;
- physical attacks that can destroy an ATM and cause catastrophic damage to the structures around it;
- sophisticated malware attacks that can result in multimillion-dollar losses within hours;
- skimming and other scams that shake public trust in the safety and security of ATMs;
- proliferating payments technologies that reduce consumer demand for cash; and
- rising government interest in (and international card brand promotion of) the concept of a “cashless society.”

Those are some of the direct challenges. The future of the ATM industry is also complicated by issues that include:

- continued global economic uncertainty a decade removed from the Great Recession;
- political and economic angst over the pending exit of Great Britain from the European Union and the rumored exit of other EU nations;
- the increasing sophistication of cyberattacks and their threat to critical infrastructure and financial markets; and
- a new and disruptive United States administration disposed toward the imposition of tariffs on imported goods — including ATMs.

That's one half of the glass.

The other half is filled with vibrant growth and opportunity all across the ATM and self-service industry.

Financial institutions in increasing numbers are looking to self-service as the cost controller of the future and the key to competitive differentiation. Over the last two years, branch transformation has progressed from limited experimentation to full-blown implementation.

Branches are becoming smaller, smarter, more customer-focused and more technologically advanced. Financial institutions are looking to ATM and self-service providers for devices that can automate mundane tasks and perform them quickly, efficiently and seamlessly from step to step and device to device.

They're also looking for software and systems that can help them efficiently manage and monitor these devices, and extend their value beyond the transaction with data-gathering and analytics capabilities that can turn masses of information into meaningful insights into customer behavior, preferences and protections.

They're looking for off-premises partners in the retail ATM world who can help them broaden their brand imprint without increasing their operational costs.

They're looking for outsourcing experts who can more efficiently keep an ATM network up and running, so that their staff can work more efficiently at assisting customers and educating them about valuable financial products.

In developing nations around the world, governments and financial institutions are reaching out with greater consistency and determination to bring unbanked populations — and their cash — into the formal financial system.

To accommodate their new accountholders, institutions across Asia-Pacific, Africa, the Middle East and South America are building more extensive and innovative ATM networks capable of bringing much-needed financial services to areas where construction of a branch is not feasible.

In developed markets, ATMs are taking up the slack as consumers migrate to digital channels and banks trim unprofitable, low-traffic branches.

This is a future with enormous potential for both financial institutions and independent ATM deployers — especially those whose business model is flexible, adaptive and nimble and whose employee culture is collaborative, creative and, above all, service-driven.

If you sneak a look at the last graph in the report, you'll see good news for the ATM as it achieves the half-century mark: Industry members who think the ATM has passed its peak are outnumbered by those who believe the ATM is at or still approaching its prime by a ratio of 4 to 1.

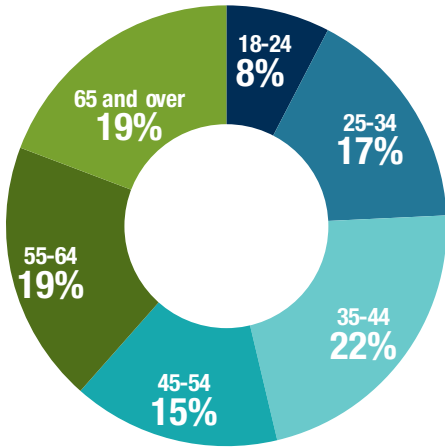
It is to these visionaries and their success that we dedicate this report.

ATM Marketplace extends sincere thanks to Auriga, whose generous underwriting allows us to present 'ATM Future Trends 2017' to our readers free of charge.

U.S. CONSUMER SURVEY RESULTS

Note: Not all data will add up to 100% due to rounding

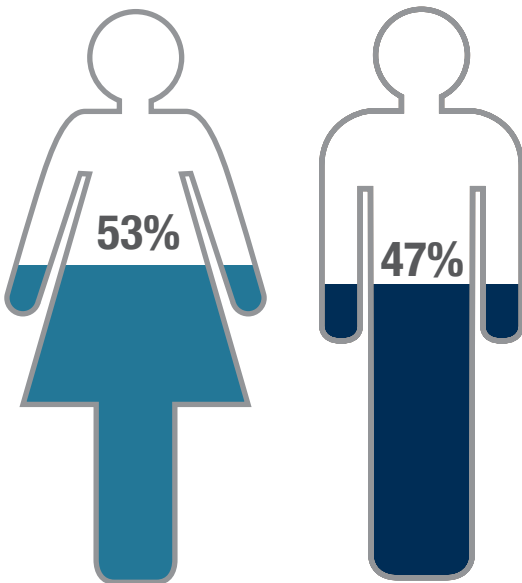
1. What is your age?



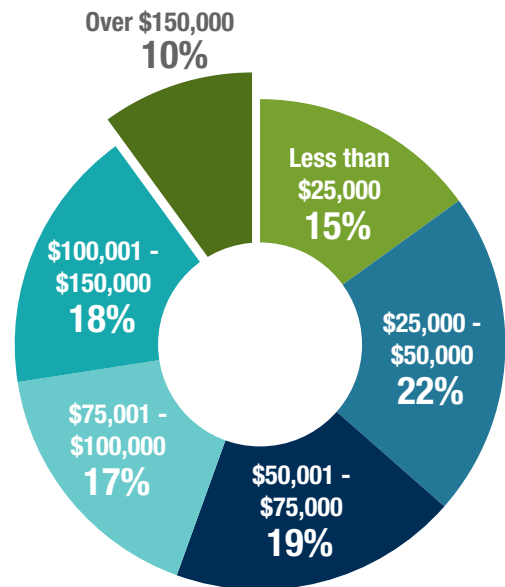
2. Where are you?



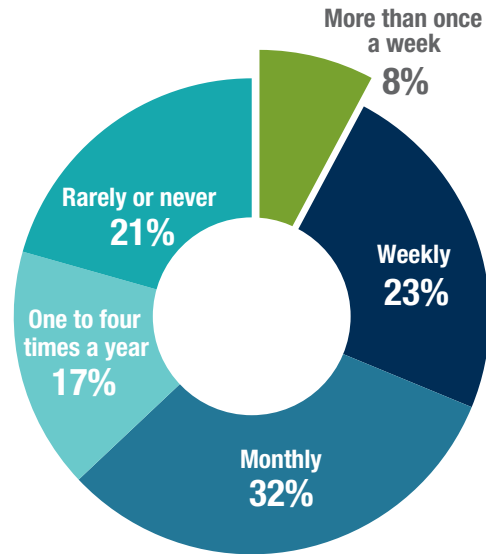
3. What is your gender?



4. What is your annual household income?

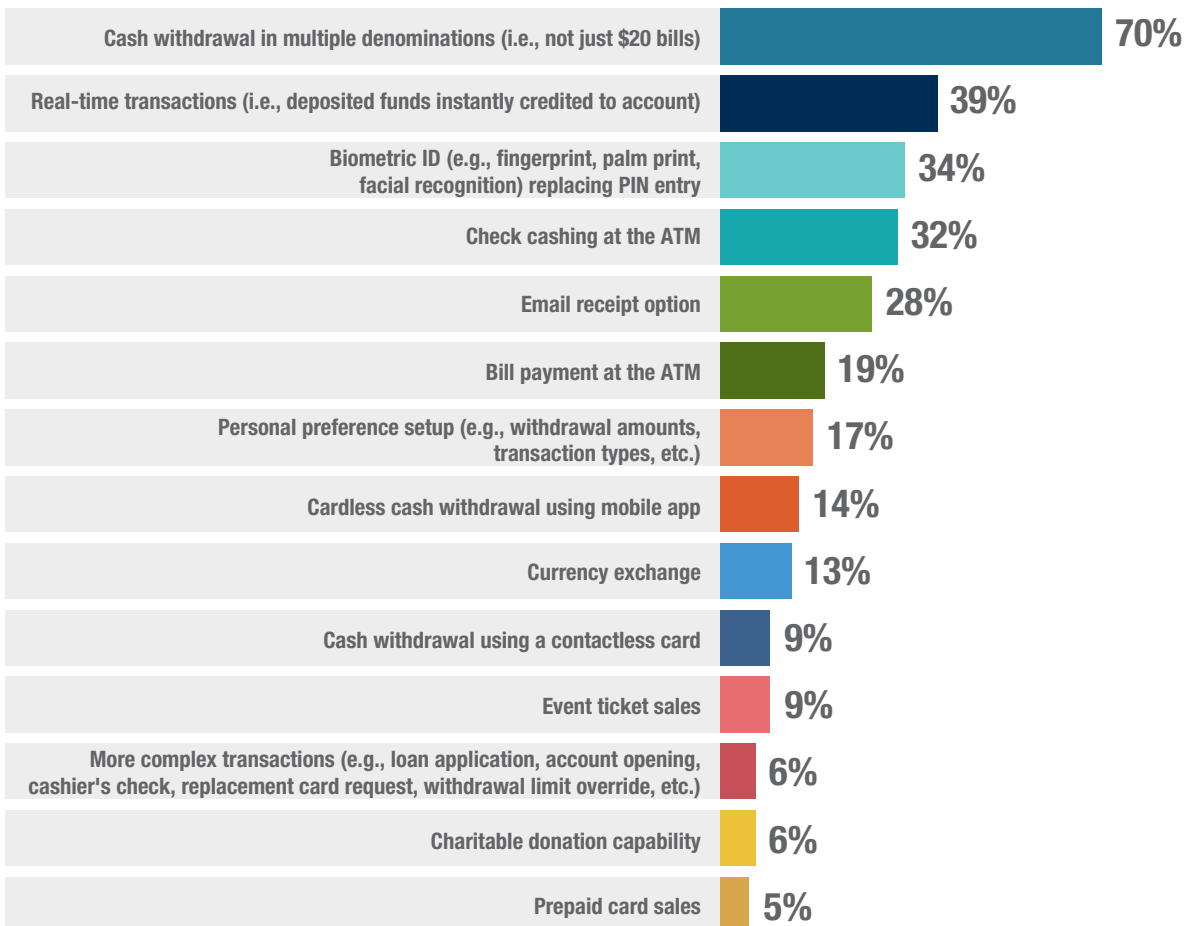


5. How often do you use an ATM?

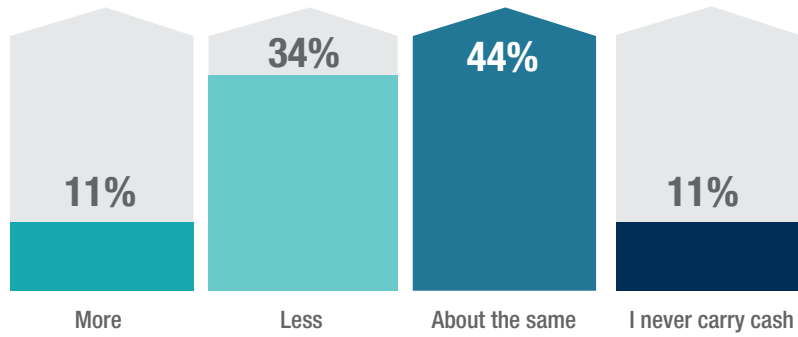


6. Which of the following services would you most like to see at the ATM?

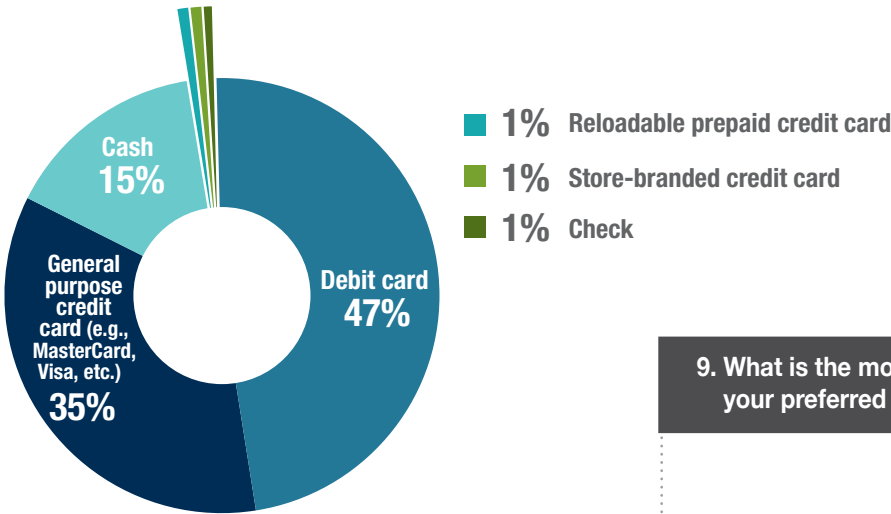
Participants selected their top three choices



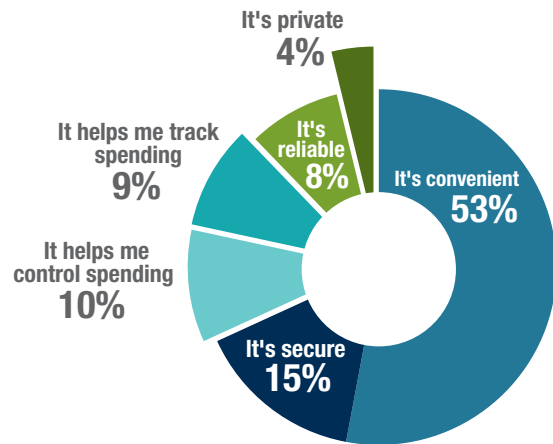
7. Are you carrying more or less cash these days?



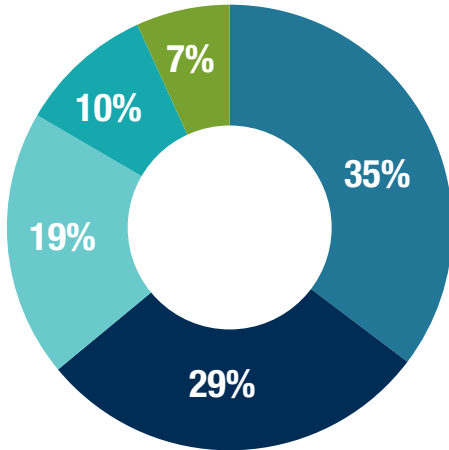
8. What is your preferred payment method for in-store purchases?



9. What is the most important thing to you about your preferred payment method?

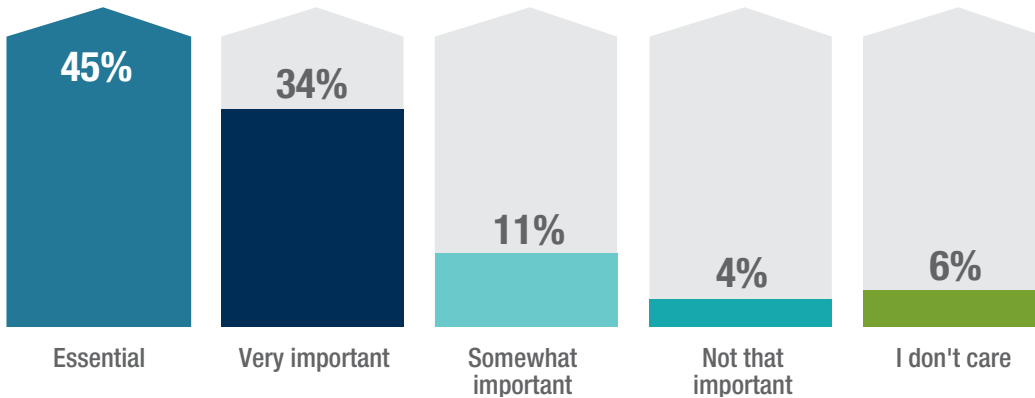


10. If data breaches continue or get worse, how likely are you to switch to cash?

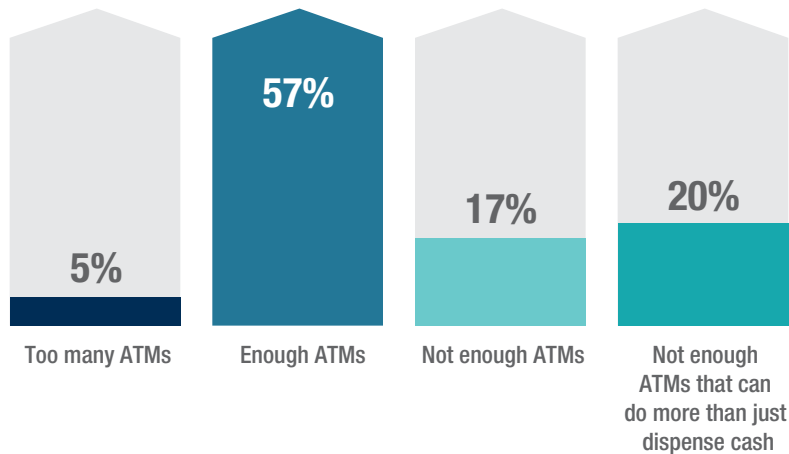


- 35%** I'll still use cards; my bank covers any fraud, so it doesn't really affect me
- 29%** I'll start thinking about it very seriously
- 19%** I'll use cash more often, but mostly for smaller purchases
- 10%** I definitely will switch for all but the most expensive purchases
- 7%** I already use cash more often because of past data breaches

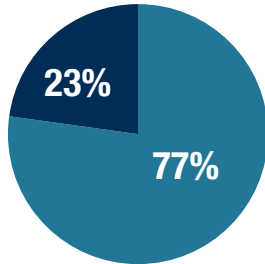
11. How important is it to you to have access to a fee-free ATM?



12. Does the U.S. have:

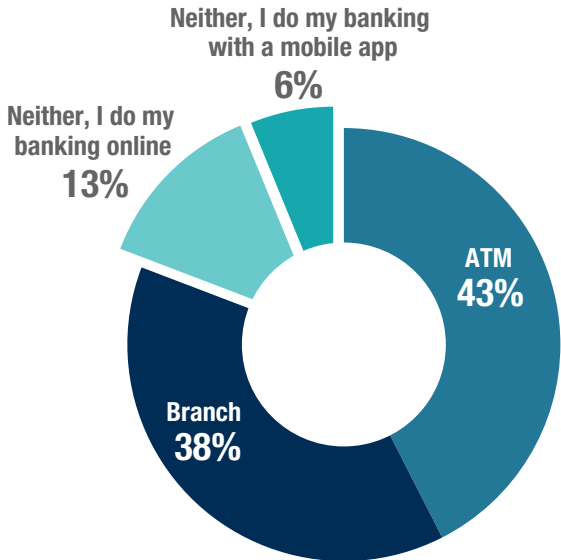


13. Would you rather have ...

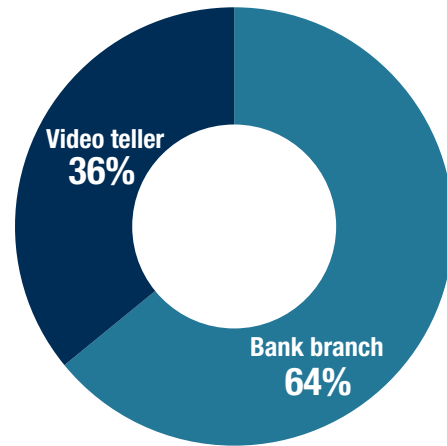


- 77% All ATMs be fee-free even if it means having to go further to find one
- 23% Guaranteed access to an ATM whenever you need cash, even if it means paying a fee of \$3-\$4

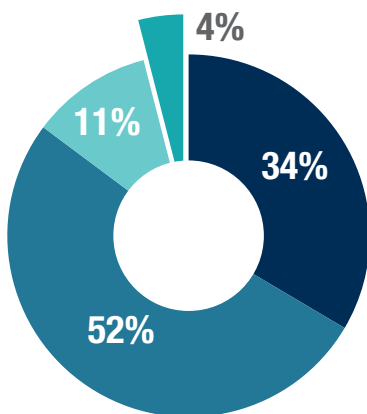
14. Is it more important to you to have an ATM nearby, or a branch nearby?



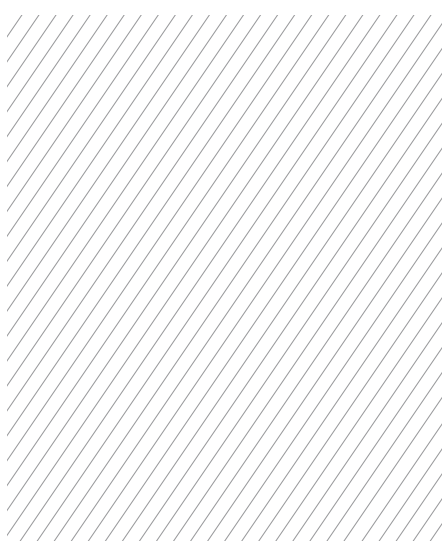
15. If you had the option to go to a teller window or do the same transaction at a drive-up video ATM with a remote teller, which would you choose?



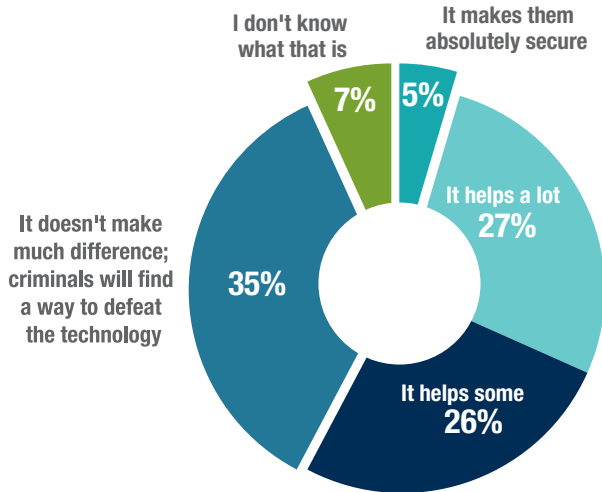
16. Do you worry about someone using a skimming device to steal your card information and PIN when you're using the ATM?



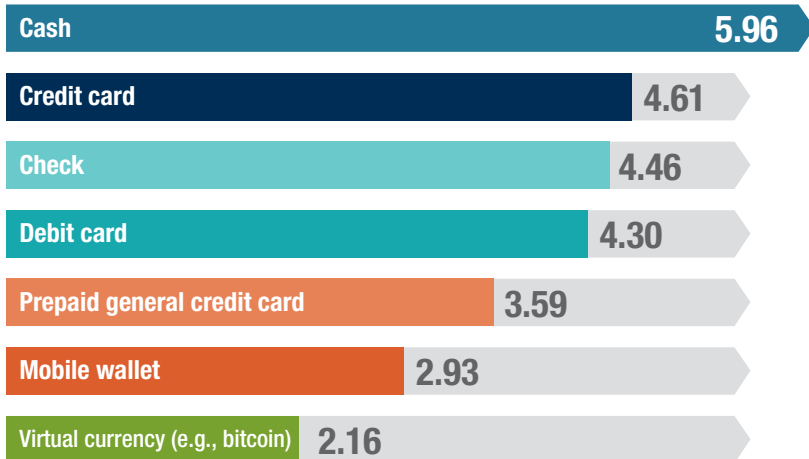
- Yes, I'm very concerned about it
- I'm aware of the possibility, but not that concerned
- I never even think about it
- What's a skimming device?



17. Do you think an EMV smart card (an ATM card with a computer chip in it) will make your ATM transactions more secure?



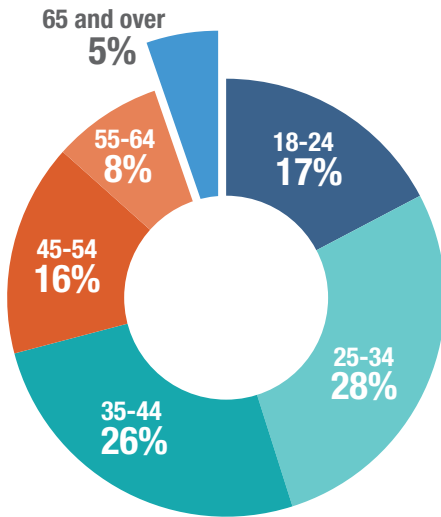
18. In terms of security, how would you rank the following payment methods (1-7, seven being most secure and one being least secure)?:



U.K. CONSUMER SURVEY RESULTS

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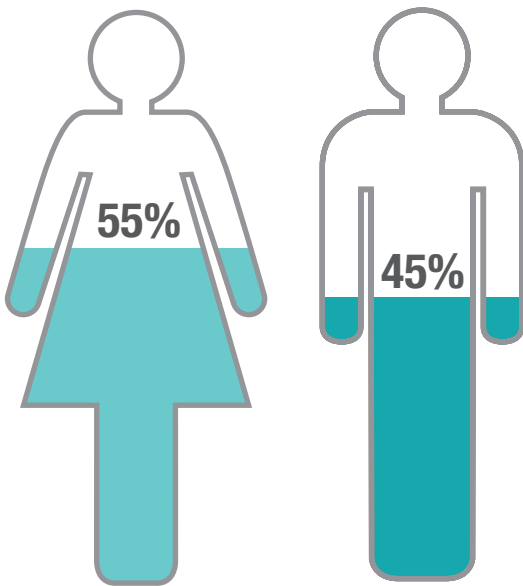
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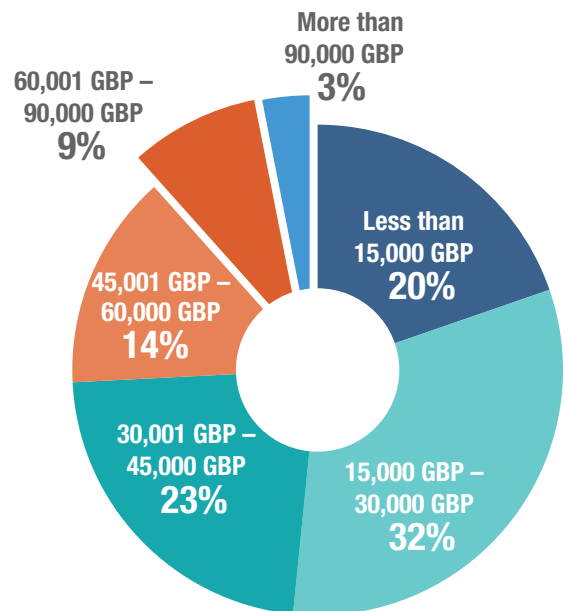
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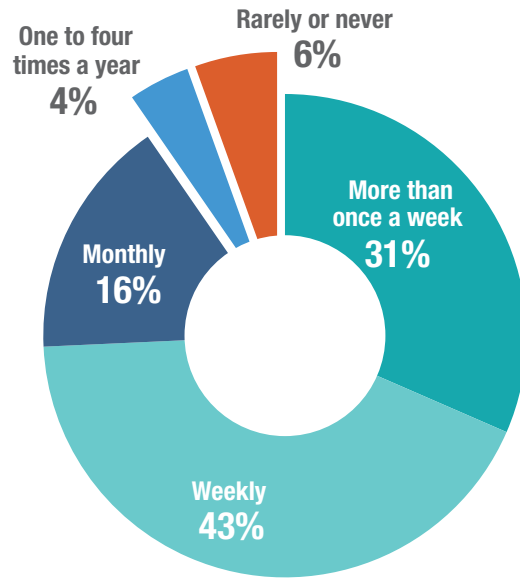
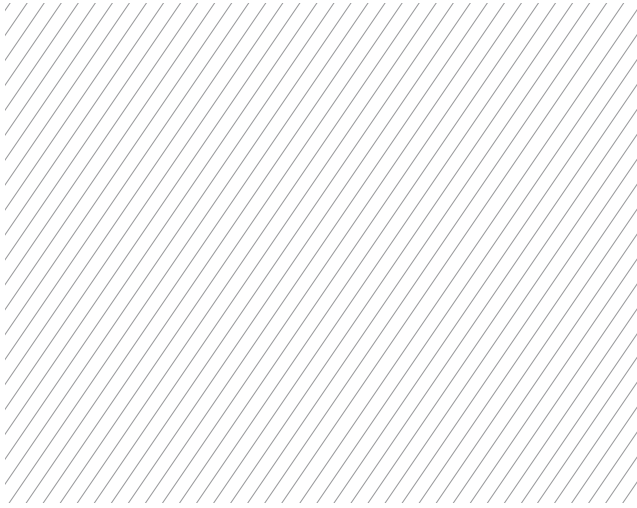
3. What is your gender?



4. What is your annual household income?

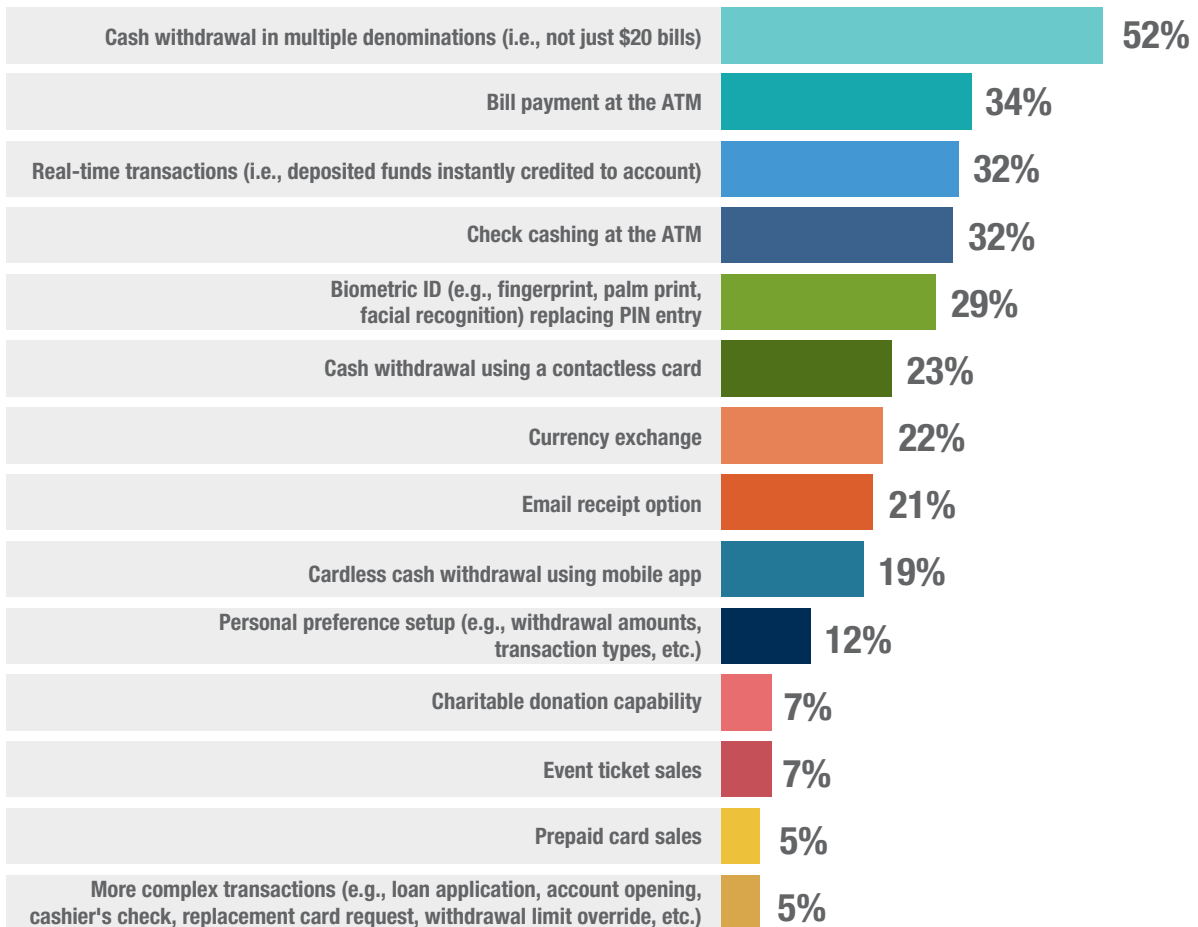


5. How often do you use an ATM?

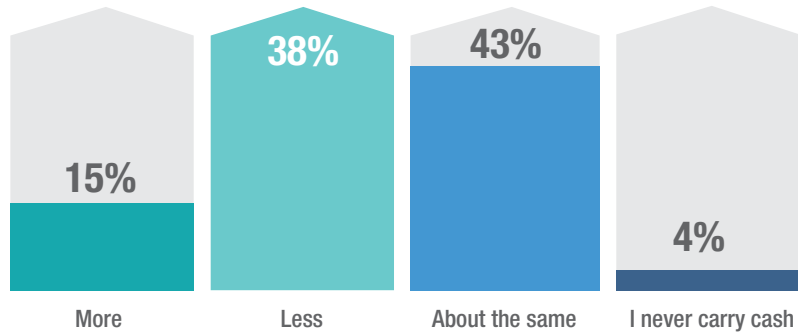


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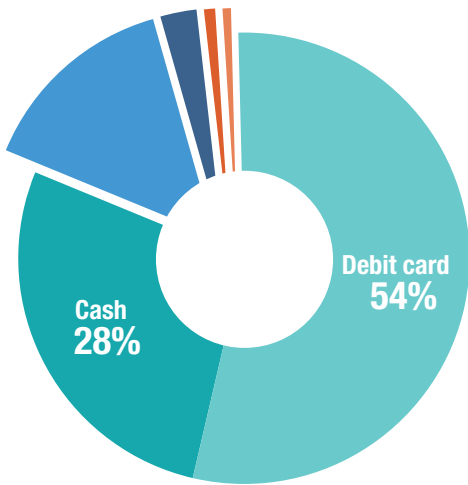
Participants selected their top three choices



7. How much cash do you carry compared with two years ago?

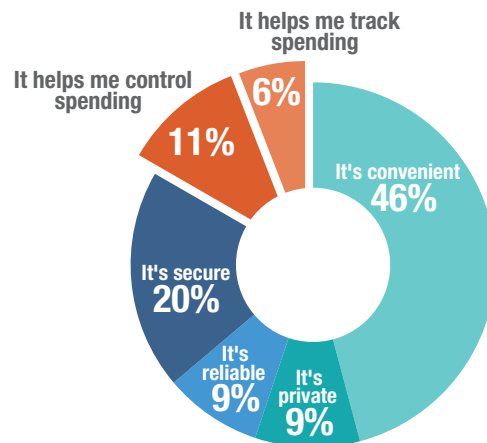


8. What is your preferred payment method for in-store purchases?

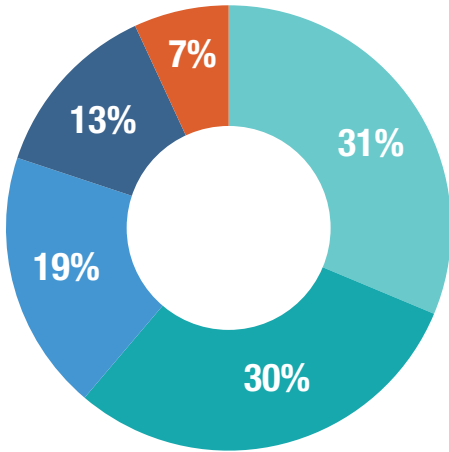


- 15% General purpose credit card (e.g., MasterCard, Visa, etc.)
- 3% Mobile wallet (e.g., Apple Pay, Samsung Pay, etc.)
- 1% Store-branded credit card
- 1% Reloadable prepaid credit card

9. What is the most important thing to you about your preferred payment method?

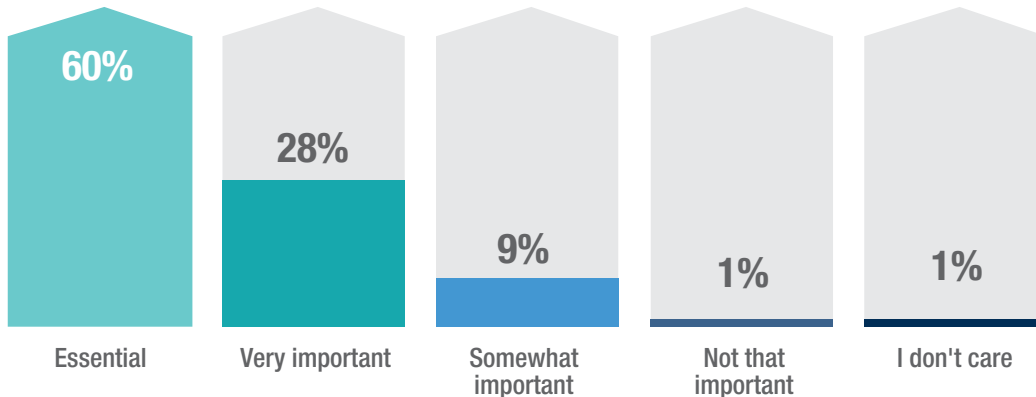


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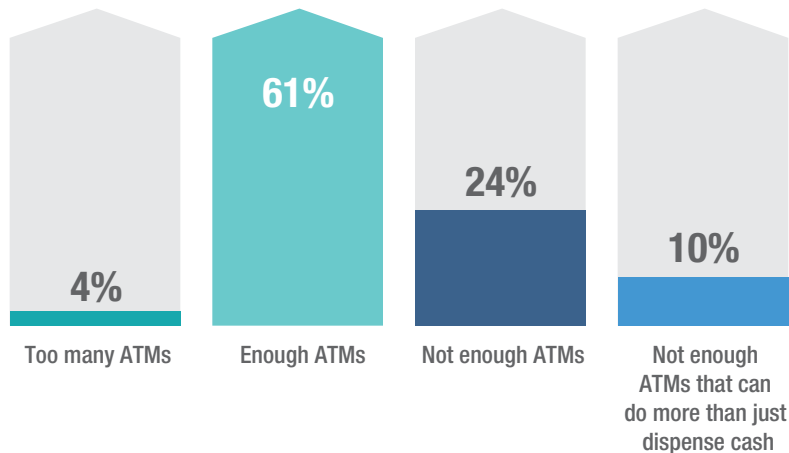


- **31%** I'll start thinking about it very seriously
- **30%** I'll use cash more often, but mostly for smaller purchases
- **19%** I'll still use cards; my bank covers any fraud, so it doesn't really affect me
- **13%** I definitely will switch for all but the most expensive purchases
- **7%** I already use cash more often because of past data breaches

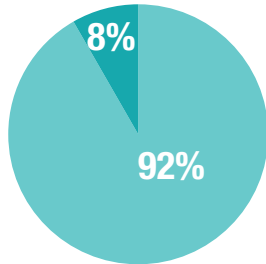
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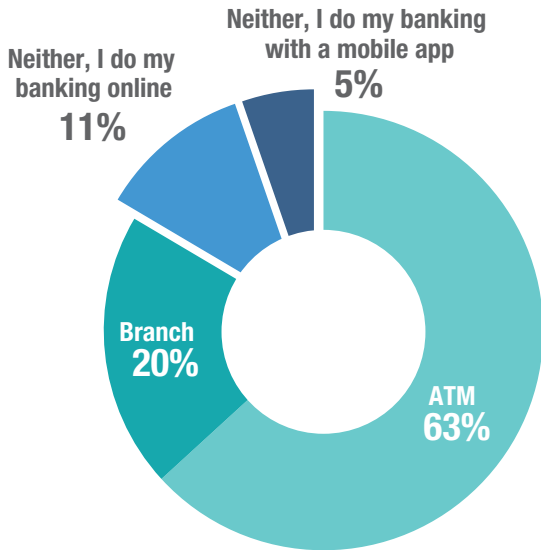


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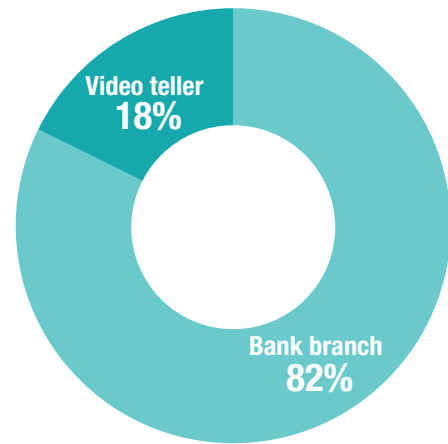


- 92% All ATMs be fee-free even if it means having to go further to find one
- 8% Guaranteed access to an ATM whenever you need cash, even if it means paying a fee of 3-5 pounds

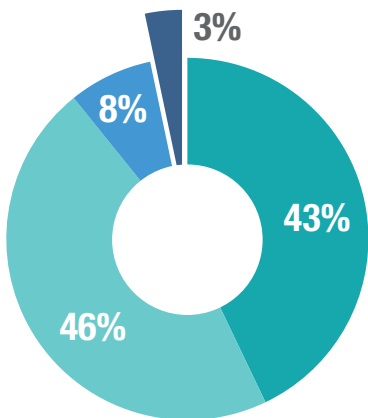
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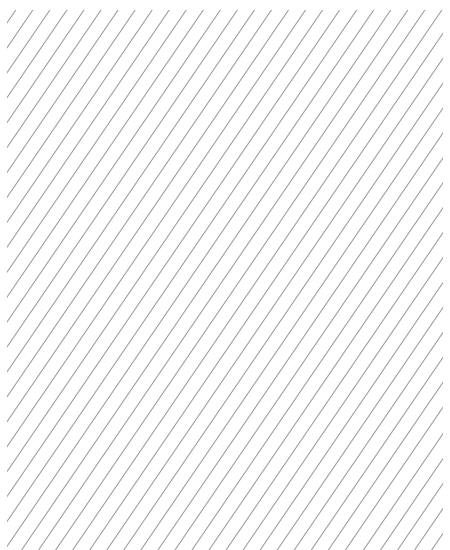
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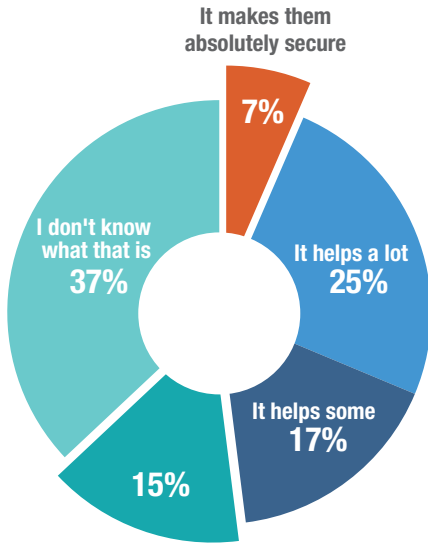
16. Do you worry about someone using a skimming device to steal your card information and PIN when you're using the ATM?



- 46% Yes, I'm very concerned about it
- 43% I'm aware of the possibility, but not that concerned
- 8% I never even think about it
- 3% What's a skimming device?

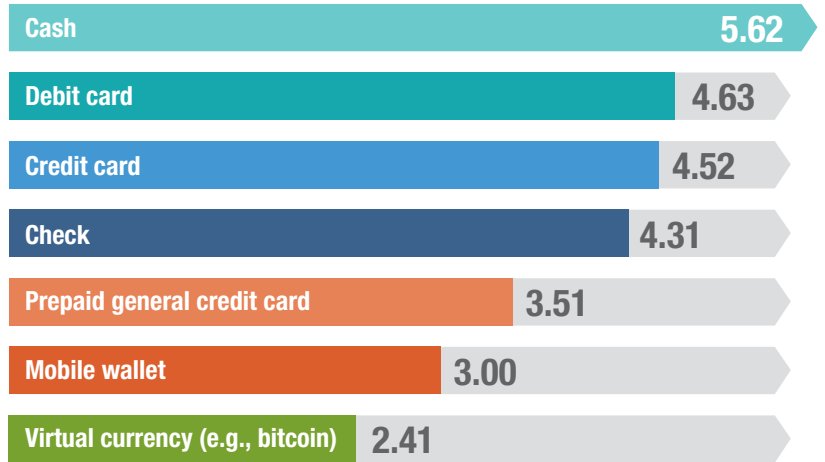


17. Do you think an EMV smart card (an ATM card with a computer chip in it) will make your ATM transactions more secure?



It doesn't make much difference; criminals will find a way to defeat the technology

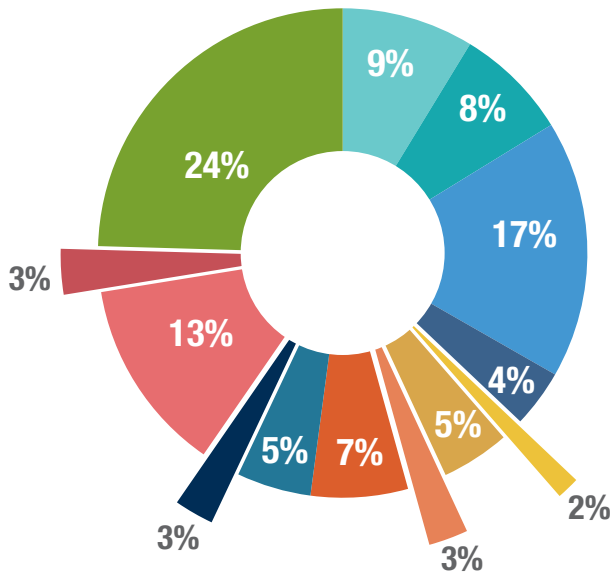
18. In terms of security, how would you rank the following payment methods (1-7, seven being most secure and one being least secure)?:



INDUSTRY SURVEY RESULTS

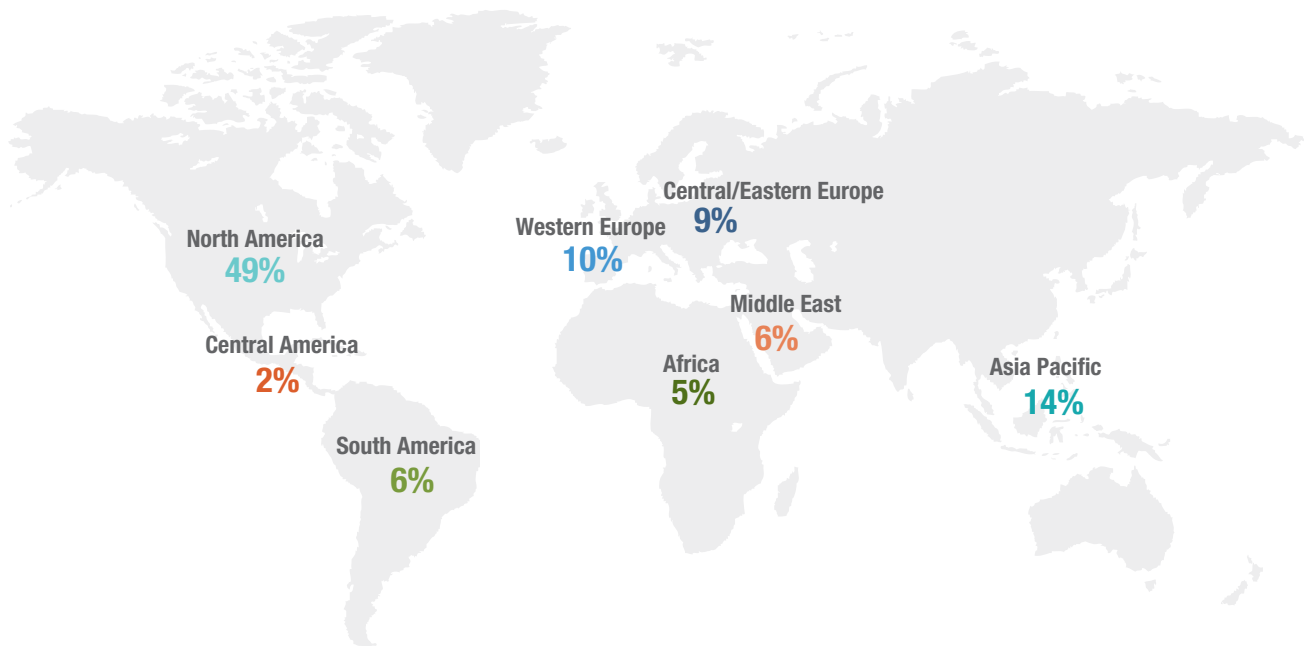
1. What is your industry segment?

Other includes: Consultants, regulatory authorities, resellers, software developers, and solutions providers.



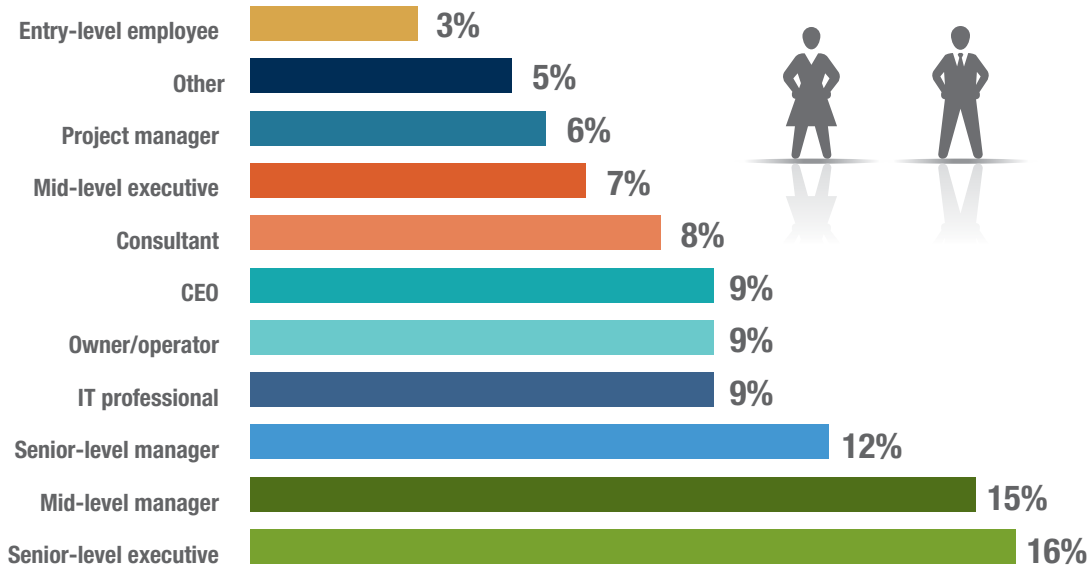
- 9% FI, less than \$500 million in assets
- 8% FI, \$500 million to \$1 billion in assets
- 17% FI, \$1 billion to \$500 billion in assets
- 4% Independent ATM deployer with 1-25 ATMs
- 2% Independent ATM deployer with 26-100 ATMs
- 5% Independent ATM deployer with 101-500 ATMs
- 3% Independent ATM deployer with 501-1,500 ATMs
- 7% Independent ATM deployer with more than 1,500 ATMs
- 5% Processor
- 3% EFT network
- 13% ATM manufacturer
- 3% ATM parts provider
- 24% Other

2. In which region is your company based?

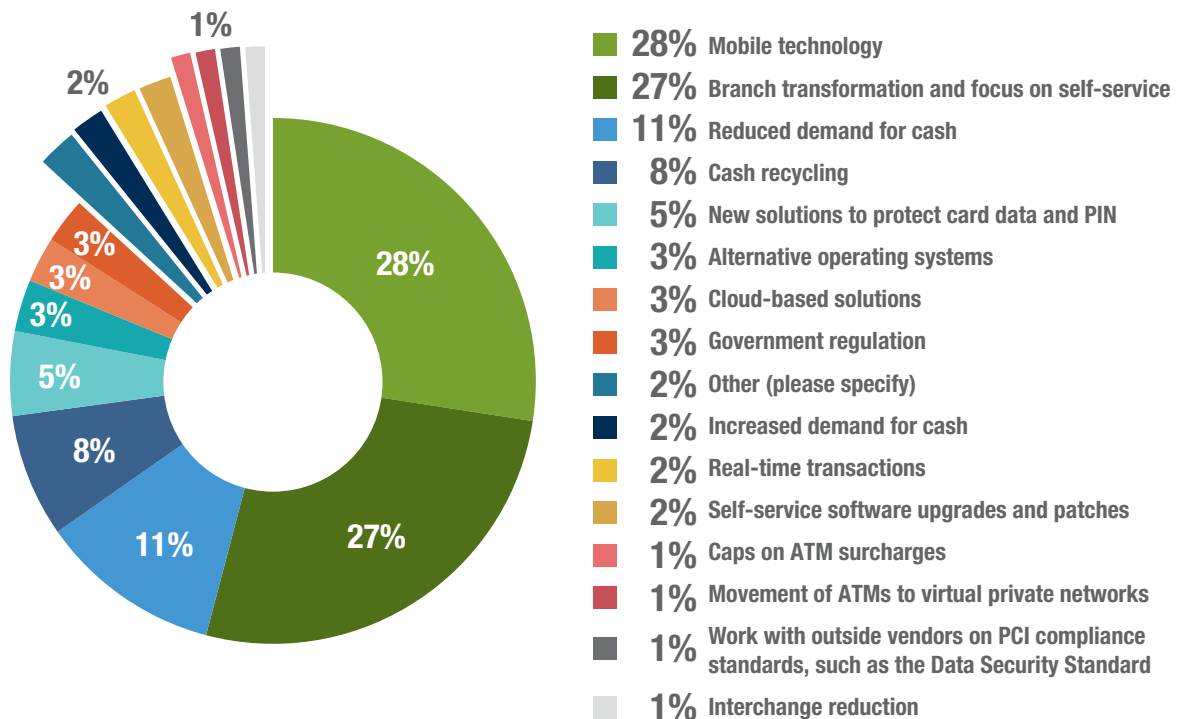


3. What is your position?

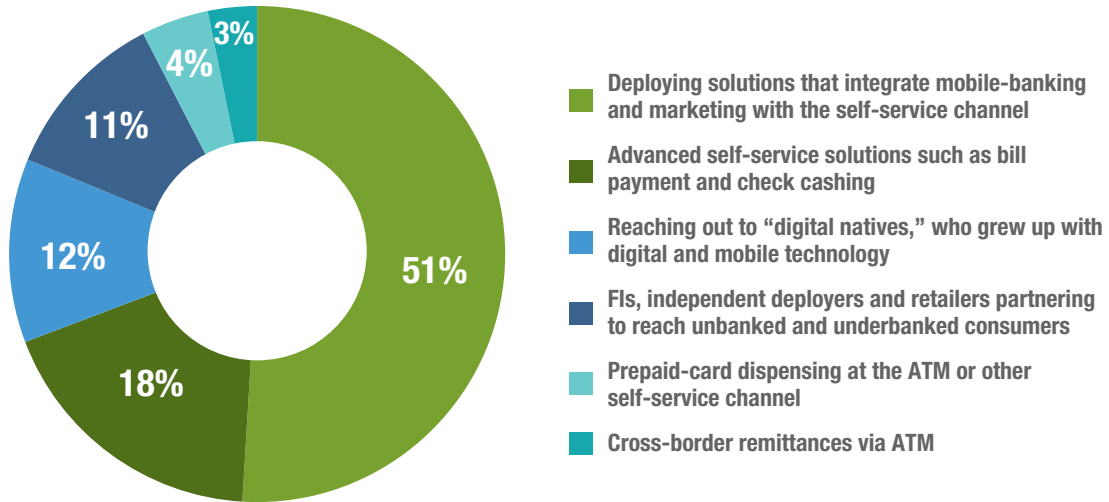
Other includes: Analysts, engineers, and sales.



4. Over the next five years, which of the following do you believe will have the greatest impact on the global ATM industry?

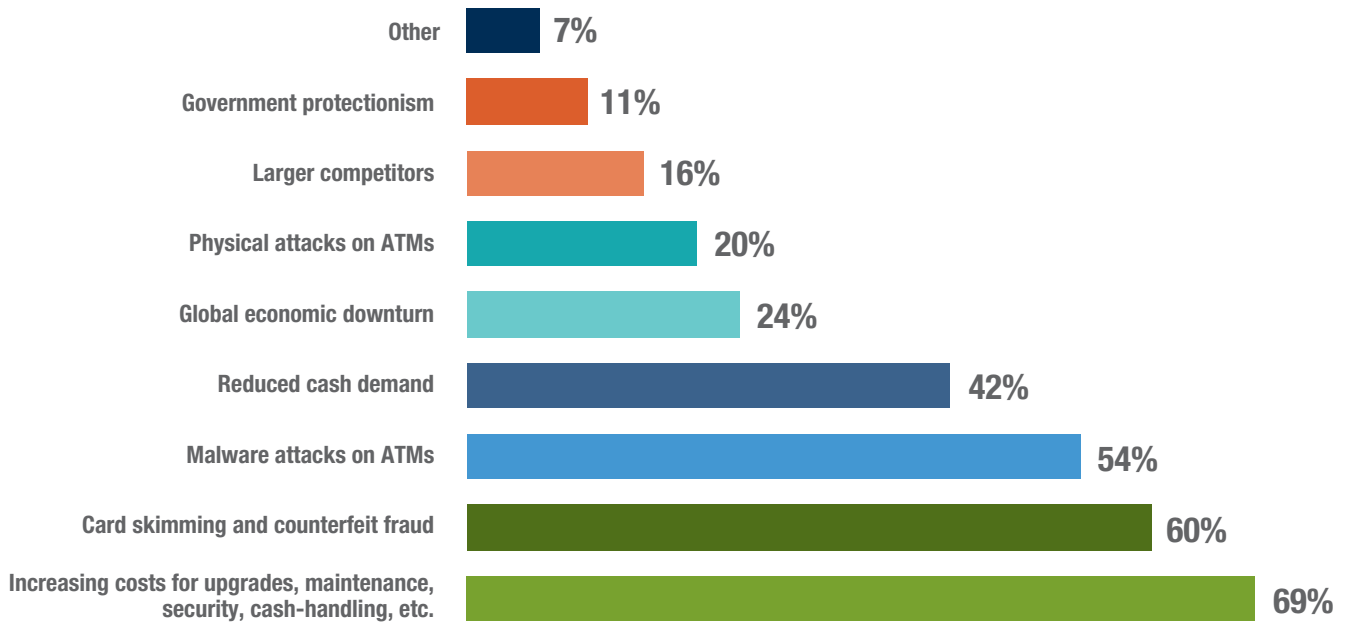


5. In five years, which of the following will be the most popular trend in serving cash-preferred consumers?

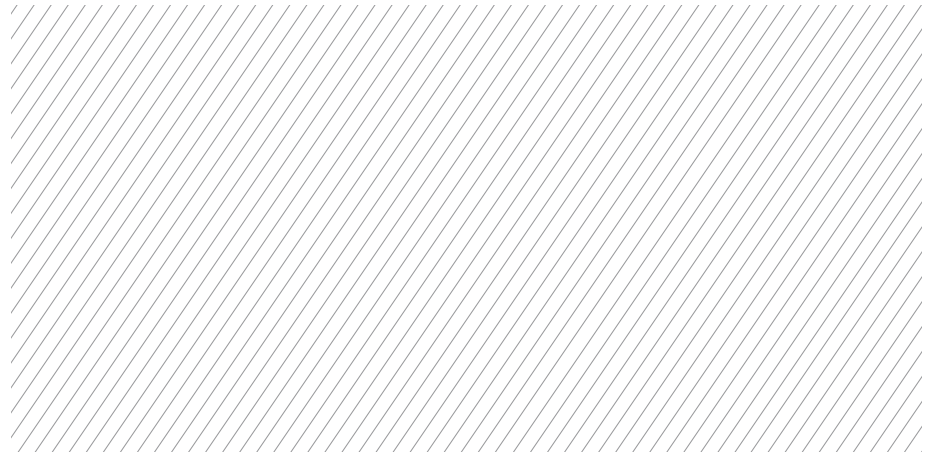
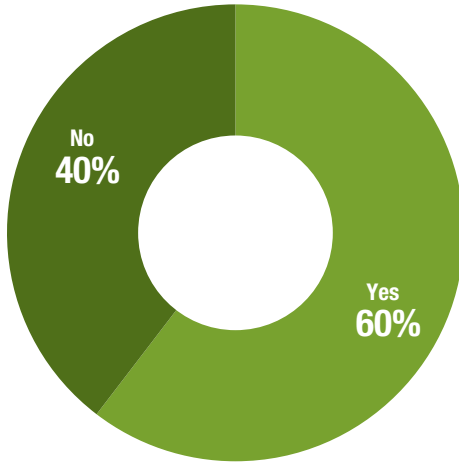


6. In the next five years, what do you see as the top three threats facing the ATM industry in your region?

Other includes: EMV, government regulations, mobile apps, higher interest rates, legacy infrastructure

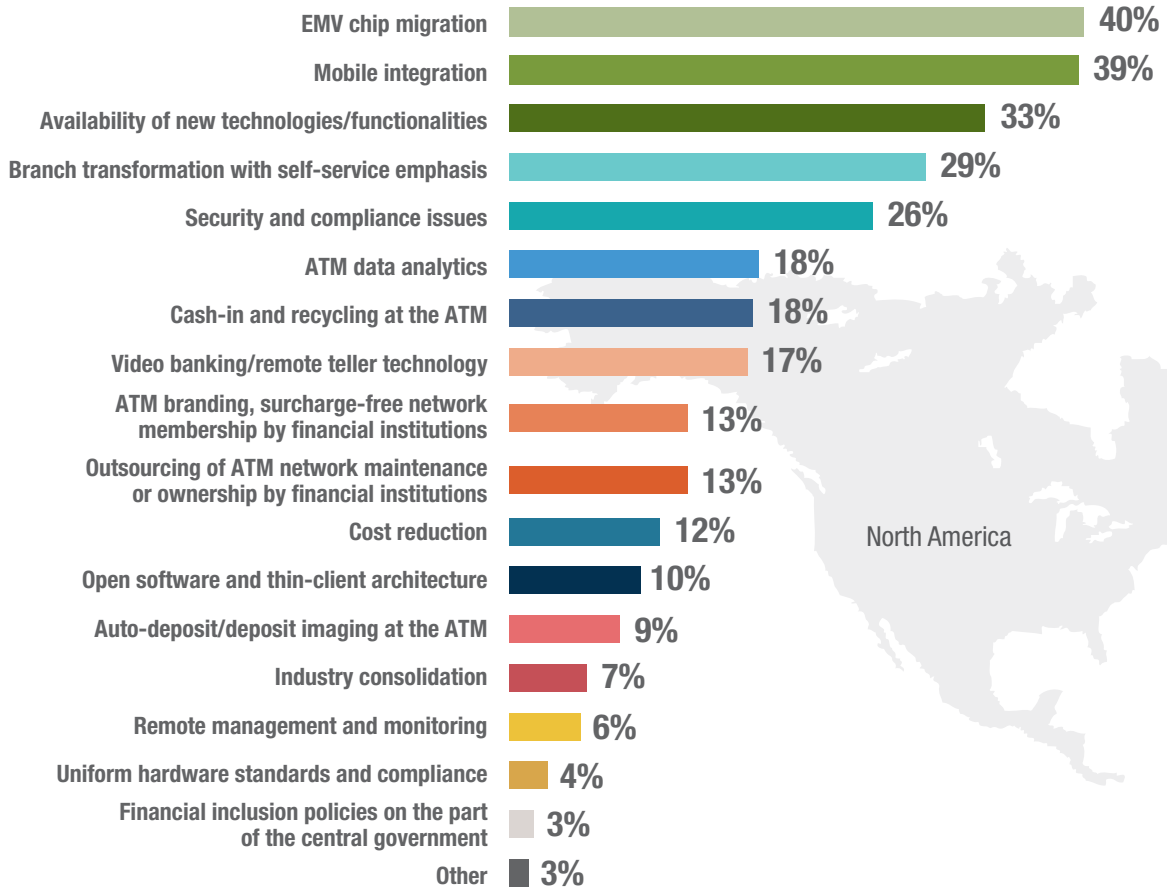


7. Do you see the regulatory environment as predominantly positive for the continued growth of the ATM industry?



8. Which trends are most likely to affect the North American ATM market in the next five years?

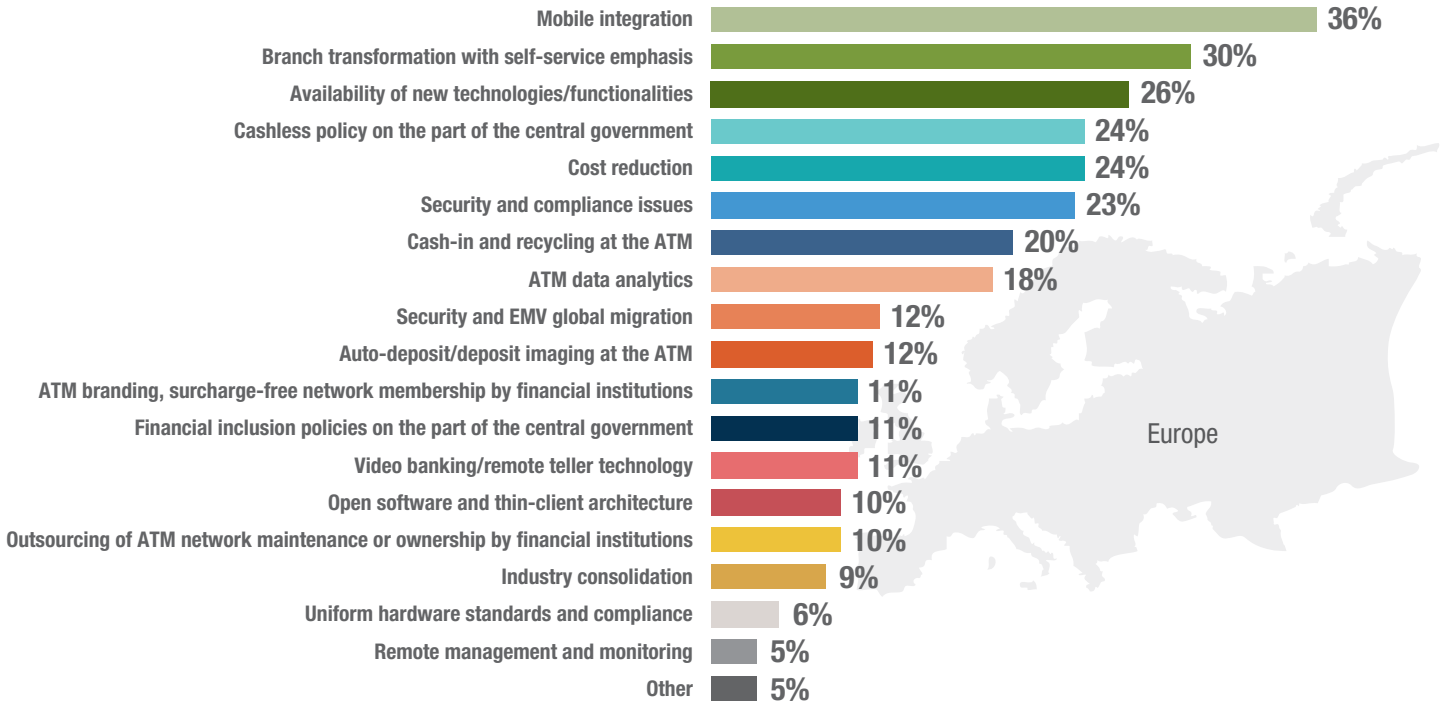
Participants selected their top three choices



North America

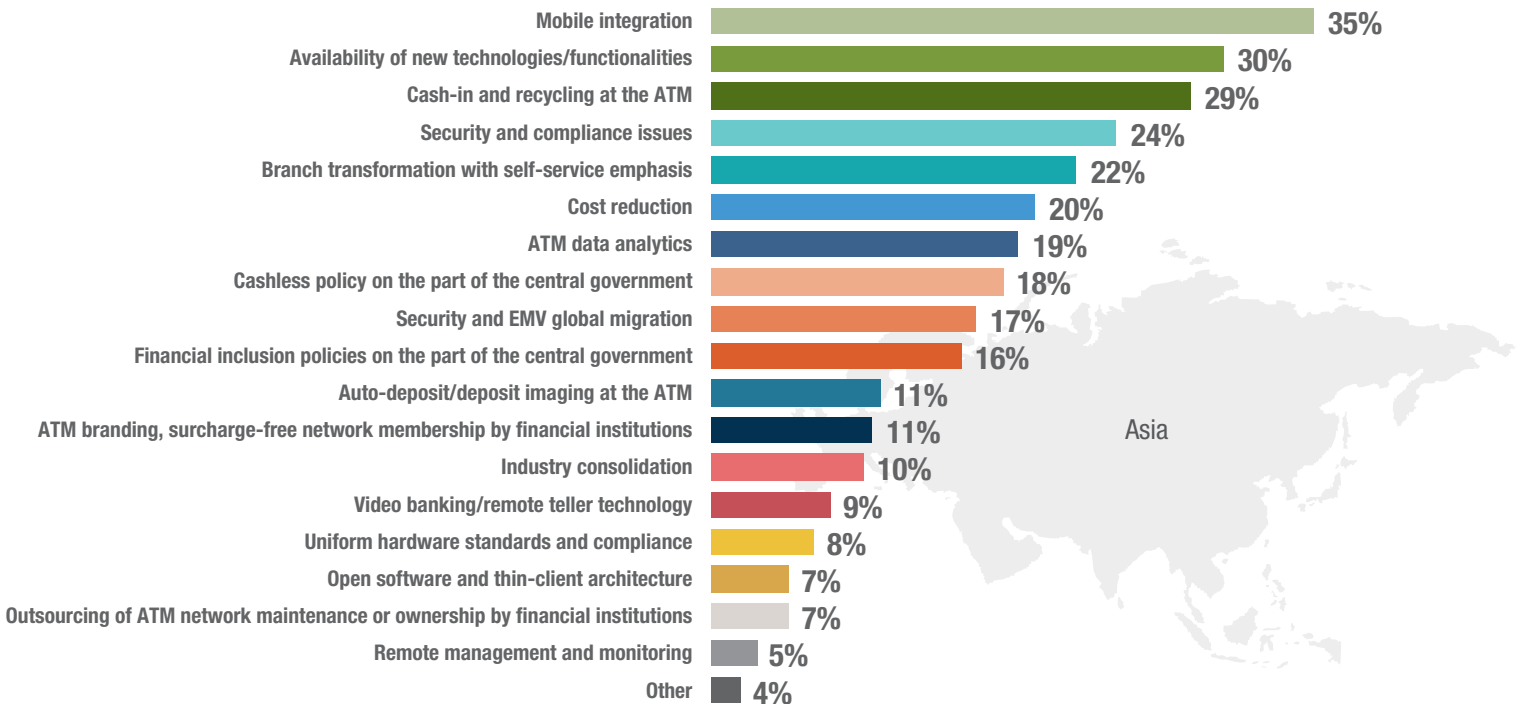
9. Which trends are most likely to affect the European ATM market in the next five years?

Participants selected their top three choices



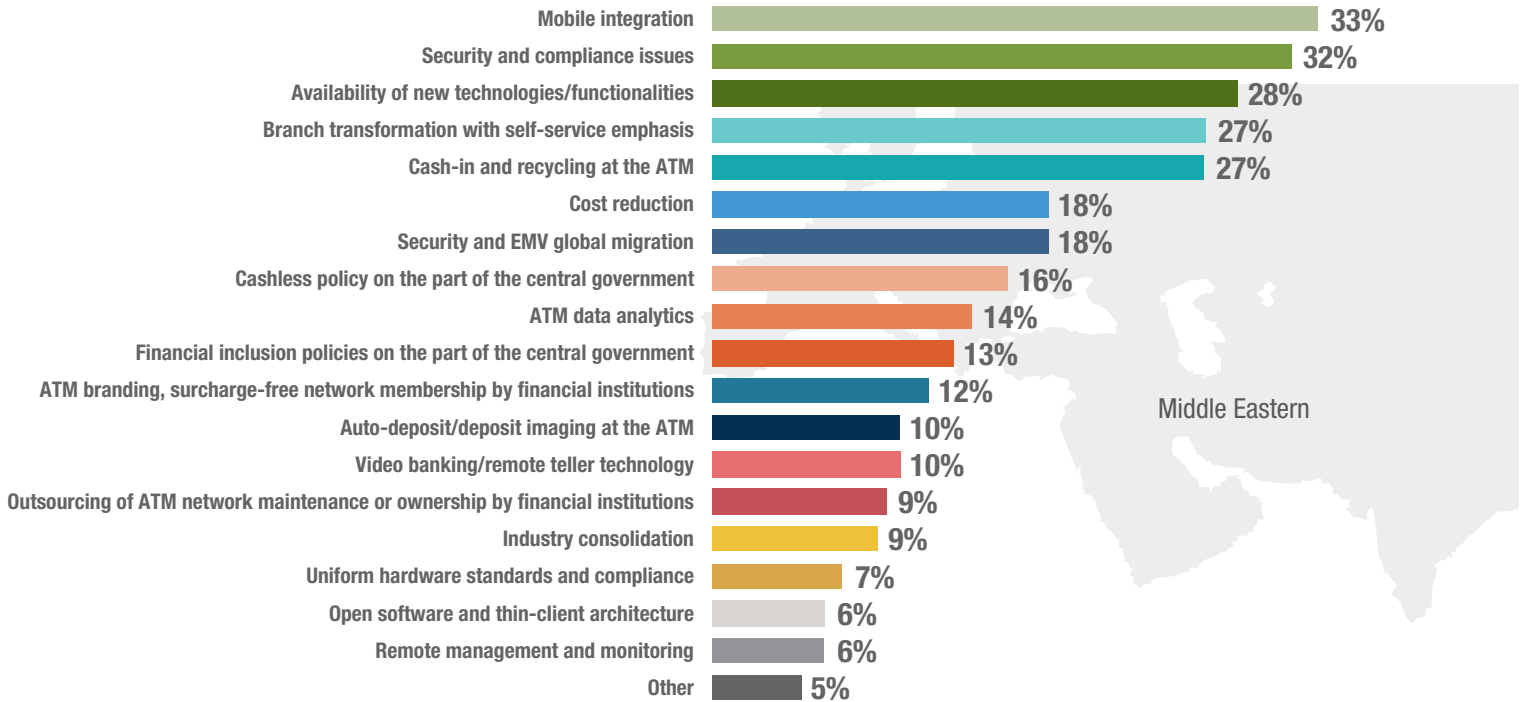
10. Which trends are most likely to affect the Asia-Pacific ATM market in the next five years?

Participants selected their top three choices



11. Which trends are most likely to affect the Middle Eastern ATM market in the next five years?

Participants selected their top three choices

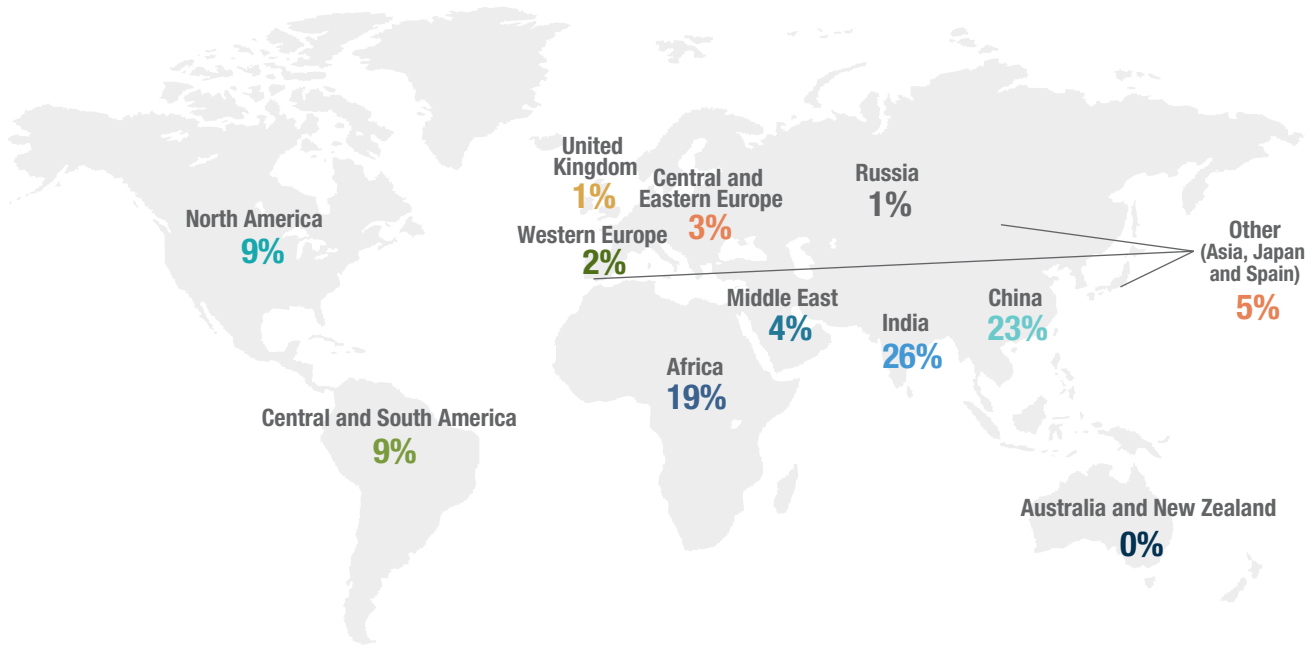


12. Which trends are most likely to affect the African ATM market in the next five years?

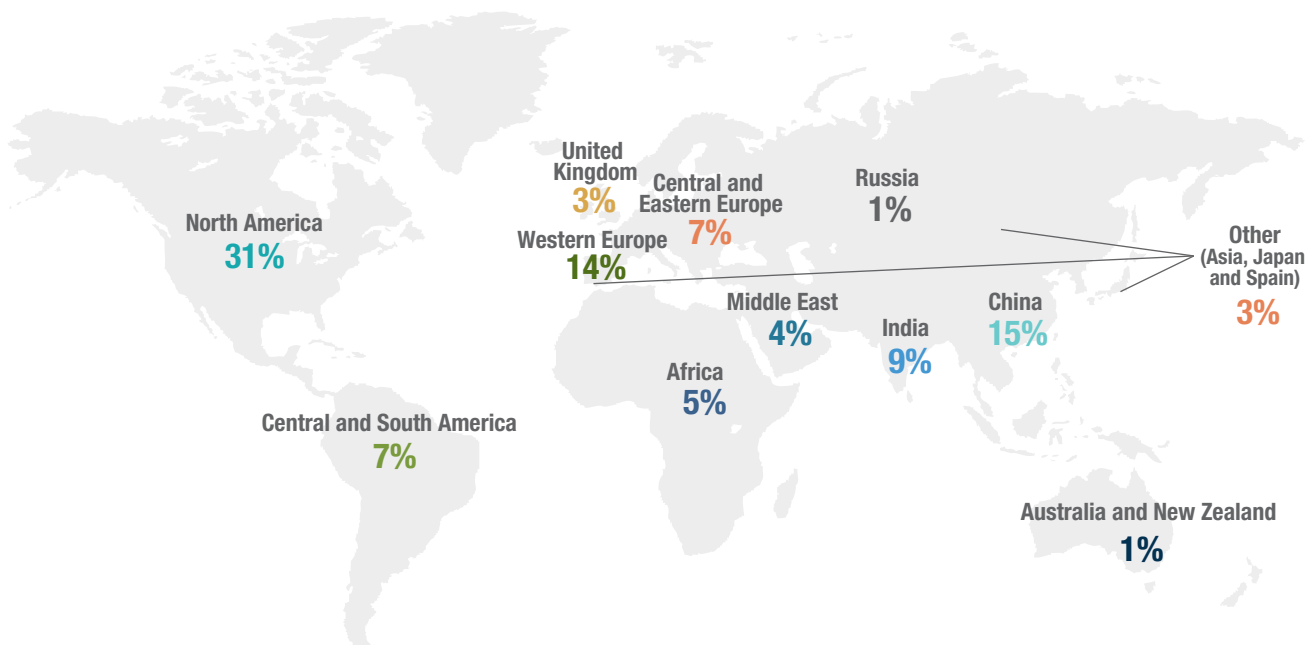
Participants selected their top three choices



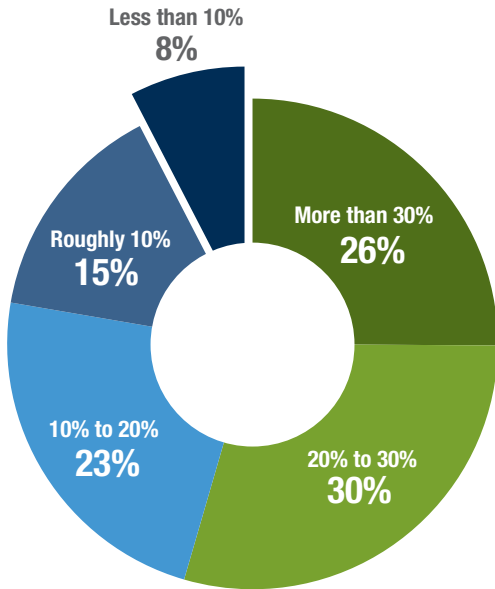
13. In five years, what region or country will be considered the most popular deployment market in terms of new or replacement installations?



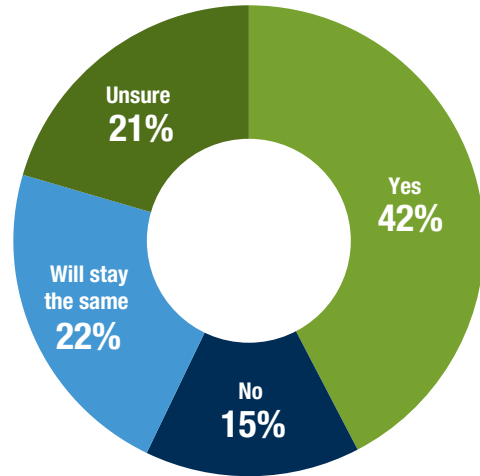
14. In five years, what region or country will be considered the most popular deployment market in terms of replacement installations or added ATM functionality?



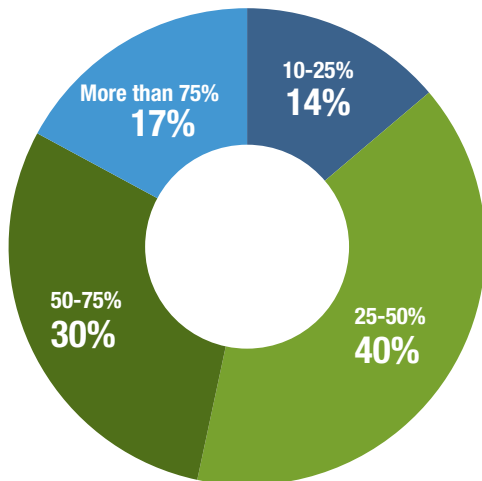
15. In five years, what percentage of successfully completed ATM transactions will NOT be cash withdrawals?



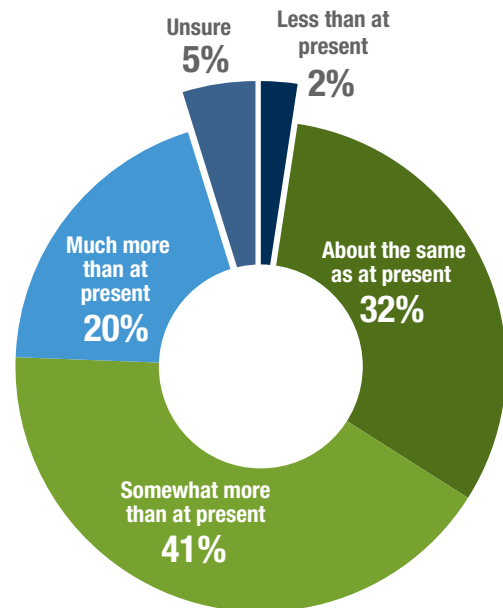
16. Do you think surcharging will become more prevalent in markets outside North America within the next five years?



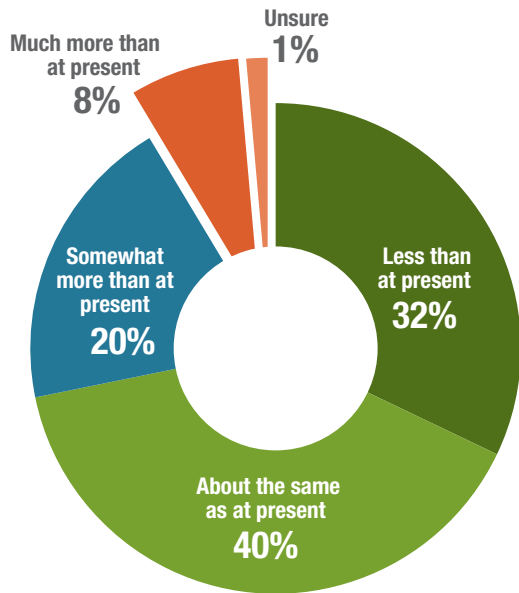
17. What percentage of U.S. ATM deployers will be EMV-compliant when the final liability shift occurs in the American market in 2017?



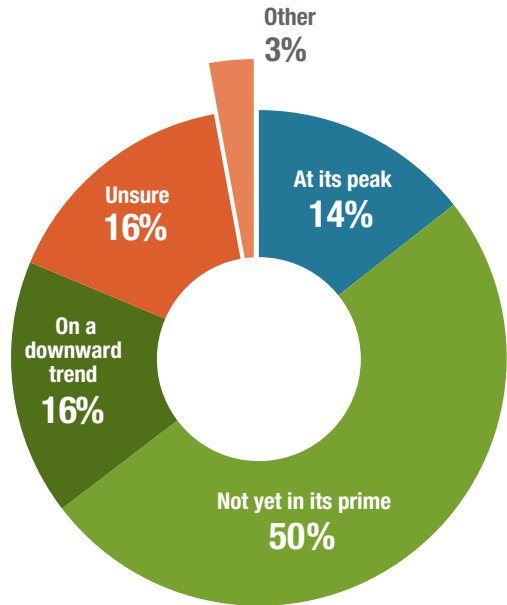
18. To what extent will financial institutions outsource their ATM operations all or in part by 2017?



19. What do you see as the trend in cash demand in your region over the next five years?



20. This year marks the 50th anniversary of the first ATM installation. Where do you believe this banking technology is in its development as of today?



Extended Services at Smart ATMs Enhance Quality of Customer Experience and Increase Revenue

2017 marks both the golden anniversary of the ATM and the silver anniversary of Auriga as a leading European provider of innovative omnichannel solutions to banks and other financial institutions.

Auriga's growth over the last 25 years has been driven by our advocacy to the retail banking sector of vendor-independent, fully vendor-agnostic ATM software solutions. At the same time, we have held to a vision for the future of banking in which digital banking, ATM/ASD/ASST and the branch are integrated on an omnichannel platform in a seamless and convenient way.

This perspective keeps customers first. Customers aim to interact with their financial service providers in the simplest and fastest fashion, accessing and benefiting from the same accurate and up-to-date information regardless of the chosen access point.

At Auriga, we are convinced that every banking service channel can be transformed into an efficient communication tool that enhances customers' experiences and maximizes the opportunity for financial institutions to sell new services. This includes the ATM channel. Indeed, we believe that the ATM, when part of an advanced smart web-based ATM architecture, will survive and thrive in the current banking revolution, which is being driven by changing customer behaviors and issues linked to estate cost management and security. The ATM and new generations of self-service machines can offer more value and provide better services to a bank's customers, if managed as part of a channel that is fully integrated into an omnichannel banking environment.

In fact, even with the fast-growing adoption of digital channels, the ATM remains a primary interface between customers and their banks. Customers are familiar and comfortable with ATMs as a way of accessing their banks. There are operational challenges, however. ATMs can be a costly channel



Antonella Comes
chief marketing officer,
Auriga

Antonella Comes, chief marketing officer at Auriga, oversees sales and communications and coordinates the company's international expansion. She began this position in 1998 and is based in the company headquarters in Bari, Italy. She holds a master's degree in corporate organization with a focus in marketing from the University of Vicenza.

for financial institutions, often managed separately from other banking channels and providing a limited scope of services. But technology is available to transform the ATM channel, to make major operational efficiencies and to enable financial institutions to make the most of this channel.

Next-generation ATMs enabled by innovative and flexible software can change the ATM from being a simple cash dispenser to being a more personalized and richer communication channel that allows banks to extract more value and provide better service to their customers. In countless scenarios, the right software could rejuvenate existing ATMs and deliver much-needed profits for banks through new revenue streams and integrate this old-fashioned channel as part of a true omnichannel banking strategy.

Even though the technology is available, there needs to be a major change of mindset within many banks about the greater role that ATMs can play in improving customer experience and services. The current position tends to be too rigidly fixed on offering a limited set of services and reducing operating cost. Financial institutions should embrace how ATMs can become a much more powerful service platform for building customer loyalty that is integrated with, rather than superseded by, mobile and web banking.

Breaking down the technological and operational silos in customer banking channels has been anticipated for many years. It now seems the omnichannel vision is being realized. The 2016 edition of the ATM Marketplace report "[Omnichannel Marketing for Financial Institutions: An Industry Guide](#)" revealed that 64 percent of banks in the world are moving ahead with omnichannel strategies. Over the next five years, we expect banks to respond to customers' demands for more tailored advanced services at ATMs and banks, own requirement to control operational costs to meet higher standards of compliant maintenance, security and cash handling. The goal is that a fully functional, omnichannel capability enables a bank to achieve a shorter time to market for new services valued by customers while significantly lowering costs and gaining a competitive edge.

In Western Europe and other developed markets, a major transformation of traditional branch-based services is underway. This entails the closure of programs but also the development of new branch models with the branch continuing as an important touch point for sales and consulting services. At the core of the branch of the future will be smart ATMs, assisted self-service devices, welcoming kiosks and specialist consultants ready to assist customers and provide tailored service, all integrated on a single omnichannel architecture.

For many years, Auriga has been helping banks develop this new model of branch banking. With our complete omnichannel banking suite [WinWebServer \(WWS\)](#), we have made it possible to implement about 100 configurable banking services on ATMs and other devices, including withdrawals, balance inquiries, intelligent deposits or cash deposits, as well as advanced functions such as utility payments, credit transfers, tickets sales or mobile top-up services. This is achieved by deploying the same software application on ATM and ASD/ASST from different vendors for managing bill payment using multiple denominations of banknotes, checks and even coins.

Cash is confirmed as the most secure payment method in the views of the respondents to this survey. Even as cashless digital banking has become increasingly more popular, respondents say they carry the same amount of cash now as they did two years ago. So, banks need to put in place every effort to make cash management easier and more secure and consider cross-channel innovations. There are great opportunities to integrate cash management with mobile banking. Cardless pre-staged mobile withdrawal will become popular as the most convenient and safest method for accessing cash.

In a previous ATM Marketplace report on [ATM and self-service software trends](#), mobile integration was identified as one of the top three trends that are most likely to affect the ATM industry worldwide. Forty-eight percent of the banks surveyed forecast that one of the areas of branch transformation most likely to happen over the next four years would be customers using a mobile phone as the transaction device interacting with in-branch systems such as cash and currency dispensers. Indeed, the pre-staged cash withdrawal is completed at the ATM faster and more safely than a traditional card-based transaction, leading to greater consumer satisfaction. Again, it's a question of cross-channel capability that ensures that one single transaction begun on a mobile phone could be concluded easily and immediately on the ATM channel.

When combined with how a bank can analyze and monitor customer data in real time, cross-channel capabilities can enable much more personalized customer experiences when customers they access bank services on an ATM or on their online or mobile banking apps. By knowing personal choices and preferences on the ATM interfaces, banks can help transactions become faster and smoother.

Moreover, thanks to predictive analytics, banks are able to send relevant promotional messages on all or even most of the channels that their customers use.

An integrated marketing approach is extremely challenging, but it is achievable when a bank has a single smart platform for managing all channels. An omnichannel marketing approach also means gathering timely data on customers' choices, preferences and reactions to one-to-one promotional campaigns.

Availability of more integrated and tailored services at ATMs, self-service and assisted self-service devices will be the right strategy to enhance customer experience and improve a bank's revenue by maximizing the additional sales potential of each consumer interaction.

Cardless Cash

The future of ATMs – we DON'T card

If the past year has taught us anything – in politics, in sports, in virtually any area you care to mention – it is that the year ahead is incredibly hard to predict. That said, we still can cling to a few certainties; one of these is that the skyrocketing usage of smartphones will continue unabated.

According to new research conducted by Fiserv, consumers' love affair with mobile apps shows no sign of ending. On average, people report having 24 apps installed on their phones, with 15 percent having 40 or more, and 66 percent use five or more apps daily.¹ Moreover, a recent survey from YouGov found that over 50 percent of millennials now carry their phones in their hands throughout the day.²

In many areas, financial institutions have responded with a wide variety of technology solutions, from mobile deposits and bill pay to real-time payments and notifications. In the world of ATMs, however, the way people access their cash has remained largely unchanged, operating on the same card-and-PIN fundamentals as they have since the 1960s. Efforts are turning to technology that makes accessing cash safer, faster and more convenient to stay in step with people's busy lives.

Reimagining access to cash

With smartphone access the norm, particularly among millennials, the next evolution is to leverage technology to enable cardless access to cash. Even in this digital future, cash is by no means obsolete and remains the only accepted form of payment by some vendors. But while consumers sometimes need cash, it cannot be assumed that people always have access to their cards.



Angel Siorek
*vice president of
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and debit, Fiserv*

Angel Siorek, vice president of product management, and debit, at Fiserv, oversees debit growth solutions and channel management. She joined Fiserv in 1993 and has held many diverse positions during her tenure, including operational, client relationship, product and leadership roles. Siorek holds a bachelor's degree in secondary education from Kutztown University.

¹ Fiserv, "Expectations and Experiences: Channels and New Entrants" survey:
<https://www.fiserv.com/resources/expectations-experiences-channels-new-entrants-research-paper.aspx>

² <https://today.yougov.com/news/2016/07/06/young-people-carry-phone-in-hand/>

A cardless solution might be desirable in many scenarios:

- **Emergency cash:** When consumers' wallets are lost or stolen, they need a solution to access funds when they need them the most.
- **Interim access:** Instead of waiting days for a new card to arrive, consumers can access cash in the meantime.
- **Simple convenience:** Consumers have no need to dig out a card.
- **Security-conscious consumers:** With security top-of-mind, tokenization adds a layer of security to cardless funds access at ATMs.

Easy, convenient and secure

Cardless options are coming to the fore whereby cardholders can withdraw cash even if they do not have their cards on them, by using a secure access code and PIN at participating ATMs. Users contact the card issuer via phone or mobile banking application to set up an access code (or token), as well as a secure PIN. They find the nearest participating ATM from thousands nationwide using the ATM locator online or via the mobile app, and simply input the access code and PIN to receive the cash. Consumers are able to specify the amount to be withdrawn and also are able to determine if the access code and PIN are for one-time use or multiple uses. To provide additional security, the access codes given by the financial institutions are not tied to a debit card number and account numbers are not stored on phones.

An expectation, not a “nice-to-have”

Unexpected situations occur every day, and consumers' on-the-go lifestyles sometimes make it difficult to keep a card on hand. With phones becoming like another appendage, consumers expect their financial institutions to deliver powerful, easy-to-use banking applications to their smartphones.

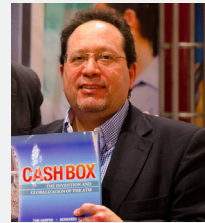
To satisfy existing accountholders and attract new ones, financial institutions soon will need to offer cardless solutions to remain competitive. This likely will be the only way for institutions to keep pace with the evolution of cash access and respond to the needs of today's on-the-go consumer — anytime, anywhere.

The ATM: Bringing 50 Years of Security and Convenience to the Banking Industry

In the summer of 2017, we will celebrate the 50th anniversary of the deployment of the first cash machine. We often think of this instance of invention around the device that was manufactured by De La Rue and deployed in Barclays' Enfield (London) branch. However, we must bear in mind two other independent groups of bankers and engineers who also deployed a cash machine in 1967, within days of Barclays: one from the U.K. (Chubb-Westminster Bank) and one in Sweden (Asea Metior — Swedish savings banks). In fact, Chubb and Metior were particularly successful in deploying devices overseas, whereas De La Rue was largely limited to the U.K.

These three instances of invention are the genesis of today's ATMs. It is appropriate to recognize all of them because they attest to innovation in retail payments embodying complex technologies. Such innovation results from team efforts that are increasingly diverse (in terms of gender, expertise and geographic location) and cut across several organizations and industries (as opposed to the vision of an isolated inventor working in a garage or a eureka moment in a bathtub).

The ATM is an icon for digital banking, and the advent of the cash dispenser certainly was a pivotal moment for today's self-service technology. At the technology's dawn, the devices only supplied crisp, new banknotes. Banks had to deal with many challenges, including placing electronics directly into the weather, enabling secure transactions and changing customer habits. ATMs were unreliable, clunky and hard to find. For almost 10 years, each manufacturer had its own activation token, as it took a while to agree on a standard for plastic cards. Since then, the cash machine has evolved from stand-alone, isolated, offline devices to the modern ATM that includes video display units, closed-circuit TV, printers, online encrypted communication and general computer technology (notably the



Bernardo Bádiz-Lazo
professor of business history and bank management, Bangor University (Wales)

Bernardo Bádiz-Lazo is professor of business history and bank management at Bangor University in Wales. He is an ATM historian and researcher. His publications include "Cash Box: The Invention and Globalization of the ATM," co-authored with Tom Harper, and more recently "The Book of Payments" with Leonidas Efthymiou. Bádiz-Lazo was named "ATM Industry Champion" by the ATM Industry Association in 2016.

Windows operating system). Much more important, ATMs no longer work in isolation but have been integrated into a global interconnected network through Visa and MasterCard.

Proponents of the cashless economy see ATMs as dinosaurs. However, the ATM remains a channel that is fully under the bank's control — from the make and model to location and security in transactions. This gives it an advantage over malware and fintech startups, which have security concerns because service is delivered over hardware where the financial institution no longer has control. Lack of control has huge implications for security as malware moves into the mobile phone and tablet space. The ATM thus can remain a channel to complete secure, “client-present” transactions or simply to finalize a transaction with a high degree of reliability.

At the same time, customer-owned devices can be (and often are) more powerful and modern than legacy systems at banks. This seems to be opening the door to disruptive innovations by new entrants in some aspects of the retail transaction space. But the reliability, trustworthiness and security of all these innovations have yet to be tested — as opposed to the 50-year successful track record of the ATM.

EMV, Fraud and Liability: Where We Are on the Road to ATM Compliance

When it comes to fighting U.S. card fraud, EMV is living up to all its promises. In fact, creditcards.com reports that, as of May 2016, chip-enabled merchants nationwide had reported a 47 percent reduction in counterfeit fraud annually, according to statistics released by Visa.

As of April 2016, EMV-compliant merchants within MasterCard's network reported a 54 percent annual decrease in counterfeit card fraud — while merchants without EMV security saw counterfeit fraud rise by 77 percent year over year.

With cardholders and merchants embracing EMV chip technology in growing numbers, many consumers may wonder why their credit union's ATMs are still limited to magnetic-stripe transactions.

That paradigm is about to change.

“Based on the ATMIA (ATM Industry Association) 2016 ATM Channel EMV Readiness Survey, nearly 90 percent of U.S. ATM owners have performed hardware and software analysis or made purchases needed to upgrade or replace their ATMs in order to support EMV,” said Terry Pierce, senior product manager for CO-OP Financial Services.

The same ATMIA survey estimates up to 60 percent of ATMs nationwide will be EMV-enabled, with almost 80 percent supporting EMV by the end of 2017.

“If your credit union is not reflected in these percentages, you need to contact your ATM vendor or a third-party provider to get started with the upgrade,” she said.

And the sooner the better, Pierce adds, noting that MasterCard's EMV liability shift for ATMs went into effect in October 2016 and Visa's is set for October 2017.



Bill Prichard
*senior manager
of public relations
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Financial Services*

Bill Prichard is senior manager of public relations and corporate communications for CO-OP Financial Services, a payments and financial technology company serving credit unions based in Rancho Cucamonga, California (www.co-opfs.org).

“If your ATMs are not in compliance with these mandates, you will be liable for any fraud that occurs when an EMV card is inserted,” she said. “Consider also that, as EMV becomes more common at the ATM, machines without its protection will be even more susceptible to card skimming. You do not want to be the last holdout.”

Where credit unions stand today

According to Pierce, credit unions lag slightly behind megabanks in terms of upgrading their ATMs.

“This is to be expected because larger banks are typically given priority with vendors due to the sheer size of their fleets and budgets,” she said. “Many large banks also have deep internal resources they can tap to develop the technology, which makes them less dependent on their vendors as well.”

She adds that the expense involved in these projects is keeping a small percentage of credit unions from upgrading.

“While that is the case, we tend to see this dynamic more with independent ATM operators,” Pierce said. “Many of these businesses can’t cost justify the upgrade — and in some instances, the machines they have deployed are simply unable to support EMV.”

Securing member data takes more than EMV

While an EMV-enabled ATM is well protected from card skimming, Pierce reminds credit unions that card fraud is not going away any time soon.

“Criminals are already shifting their efforts to card-not-present fraud, which means your members should take every precaution with online and mobile transactions,” she said. “As a credit union, you can help them stay safe in cyberspace by providing member education on security best practices.”

According to Pierce, members should be advised to vary user names and passwords across sites, and to avoid providing any personal or account data to a business they don’t recognize.

“As a credit union, serving members well truly begins and ends with securing their data,” she said. “While security innovations such as EMV are essential in the fight against card fraud, your best defense is always an informed, engaged and vigilant member.”

Bank Transformation: Bearish on Branches, Bullish on ATM Operators

At first glance, the secular trends driving change in the banking industry might seem cause for concern for independent ATM operators. Digital, on-demand, mobile — consumers now demand all of the above from their banks. So where does that leave the 50-year-old ATM, a fixed physical asset largely associated with paper currency? Leaning forward and ready to lead because bank transformation is a tailwind (not headwind) for independent ATM operators, that's where.

Make no mistake, a banking industry transformation is underway and focused on digital and mobile engagement, shrinking the number of bank branches and effectively managing customers' increasing demand for convenience. Therein lies the opportunity for ATMs.

The shrinking physical presence, the embrace of cash

According to Federal Deposit Insurance Corp. research, from June 2015 to June 2016 in the United States, more than 1,400 branches closed. To put that into perspective, that is the size of a top 15 bank. But what about the customers? All of those closed branches, yes, they eliminated real estate and cost, but the accountholders, they're still here.

Bank customers have enthusiastically embraced the digital transformation of banking. And they continue to use cash. Recently published research by the [Federal Reserve Bank of San Francisco](#) agreed with our [Cardtronics 2016 U.S. Health of Cash Study](#): Cash is the most commonly used form of payment. Importantly, there's good reason to believe this condition will endure, that cash will survive and thrive in the digital age.



Brad Nolan
*managing director of
global product and
marketing, Cardtronics*

Brad Nolan is managing director of global product and marketing at Cardtronics. Making ATM cash access convenient where people shop, work and live, Cardtronics is at the convergence of retailers, financial institutions and the customers they share. Cardtronics provides services to approximately 225,000 ATMs in North America, Europe, Asia-Pacific and Africa.

A clear trend emerged in our “Health of Cash” research: As consumers encounter a growing array of ways to pay — from cash and cards to mobile wallets and person-to-person (P2P) apps — a “new norm” is emerging, with consumers embracing a blended mix of payment options in today’s fragmented payments landscape.

The independent ATM: Critical infrastructure

The footprint, form and function of banking is evolving, with customers demanding always-on access to banking services, including ATM cash access. A byproduct of the banking transformation is that ATMs have emerged as the physical component of the digital banking model. As banks reduce branches and staff, ATMs become more valuable. And yet, cost rationalization isn’t limited to branches and people. Banks are doing the same with ATMs, along with evaluating their footprints and reducing branch locations.

An ATM specialist, an ATM infrastructure partner. Surcharge-free cash, envelope-free deposits. This is what a well-positioned independent ATM operator can be and offer for a cost-rationalizing bank. A Cardtronics can be the capital- and cost-efficient physical distribution network for banks and credit unions that find it increasingly difficult to justify a dedicated branch infrastructure, much less their own retail ATM presence.

Inflection point: Independent ATMs move up-market

Looking back on recent months through the lens of two noteworthy moments for Cardtronics, this moment in time may well be an inflection point for the independent ATM industry. Historically the means by which small- and mid-market financial institutions competed with America’s largest banks, our Allpoint surcharge-free ATM network now finds itself of great interest to those up-market institutions.

Allpoint is expanding its audience, and it’s directly correlated to the trend of digital transformation and banks looking to manage their costs more effectively. Within the last six months, Allpoint ATMs have been embraced as a vital complement to the digital strategies of both a top five and top 15 bank.

Beyond being newsworthy for Cardtronics, these are significant milestones for the independent ATM industry. Why? In many instances, America’s largest banks are leading the way in investing in digital channels. And yet, their customers clearly want what all consumers want: convenient fee-free access to cash, despite going digital in other areas of their banking relationship.

Independent ATM operators have good reason to be bullish about the future when even at the scale of a top five bank, they see independent ATMs in top-tier retail locations as critical infrastructure for transforming customer service. That is a powerful statement on how intertwined digital banking and ATMs have become in fulfilling the self-service demands of consumers, especially at a time when ATMs increasingly are becoming America’s source for cash.

What it all means

Even as the ATM advances beyond middle age, the banking industry transformation has created an unprecedented opportunity for independent ATM operators. We can be — we are being — looked at as the perfect complement to a bank's or credit union's digital strategy. The independent ATM industry can be the low-cost, high-value physical infrastructure that empowers banks to focus on their digital channels.

With the ATM turning 50 in 2017, our industry has achieved a seat of importance and honor at the banking industry table. Banking may be entering the digital age, and the ATM might be approaching its golden years, but it appears the independent ATM industry also is entering a golden age.

Top ATM Security Trends: Global Survey Insight

Organized crime operates globally, continuously hunting out and exploiting the next weakest link. ATM attacks start with deployers in one region, then quickly spread, moving cross-border to deployers in other geographies. With crime migration happening so fast, it never has been more important to understand today's global ATM threat landscape to be prepared for tomorrow's security challenges.

The latest annual global fraud and security survey results from the ATM Industry Association (ATMIA), with respondents from all main regions, published in December 2016, provide a global view of ATM crime trends. In summary, fraud attacks were reported by 43 percent of respondents as increasing over the previous year, while one-third of respondents reported that levels of fraud remained constant. Physical attacks were reported by 41 percent as increasing, while one-quarter of respondents reported them as remaining at the same level.

The inventiveness and persistence of ATM crime is clear. Mike Lee, CEO of ATMIA, urges the industry to stay on guard, saying, "The wide range of types of attack, as well as the technologies and tools used by fraudsters, remains a daunting challenge which calls upon us to stay vigilant and cooperate with law enforcement in stamping out crimes targeting ATMs."

The top concern relating to fraud attacks is ATM skimming, reported by 31 percent as their highest concern, followed by 18 percent reporting malware jackpotting of the dispenser, 14 percent black box jackpotting and 12 percent card data compromise by malware.



Claire Shufflebotham
global security director,
TMD Security GMBH

Claire Shufflebotham is global security director of TMD Security GMBH. She has more than 20 years' experience in the financial self-service industry, where she has held senior global product management and marketing roles in physical and logical security, compliance, software, services and consultancy. TMD Security is a global market leader in ATM anti-skimming and physical security solutions. TMD's Card Protection Kit (CPK), Active DIP Kit (ADK) and Card Protection Plate (CPP) currently protect more than 350,000 ATMs worldwide. For more information, visit www.tmdsecurity.com

Skimming remains the biggest fraud cost to the global ATM industry annually, with estimated losses well in excess of \$2 billion. FICO reported in 2016 that the number of ATMs in the U.S. that were compromised in 2015 rose 546 percent over the year before — the highest level of ATM skimming for 20 years.

The European ATM Security Team (EAST) reported that ATM skimming losses in Europe rose again by 16 percent in 2015 to approximately \$366 million. This represents a 57 percent rise in the average cost of a skimming incident, which is now in the region of \$88,500.

Skimming is not confined to ATMs; all self-service payment terminals are a target for skimming. While approximately 430,000 ATMs are in the U.S., the U.S. convenience store industry has 765,000 fuel dispensers, according to NACS. Skimmers on a fuel pump are attached over the card slot, in front of the machine or inside it. NACS states that a typical skimmer captures data from up to 100 cards a day. This is consistent with Florida State recently saying that it has seen 100 cards skimmed per fuel pump skimming device and \$1,000 stolen from each skimmed card, resulting in financial losses from just one skimmer of approximately \$100,000.

Though the global move to EMV will address skimming in the future, the problem today lies in the continued use of magnetic-stripe technology on payment cards. Magnetic-stripe technology is an easy target for criminals. Until all consumers have EMV chips on their cards and card issuers remove the magnetic stripe, this problem seems here to stay.

When asked about which types of ATM skimming devices are most common, 37 percent of the ATMIA respondents said traditional “overlay” devices positioned over the card entry slot. Interestingly, the use of new types of skimmers that are extremely difficult to protect against with today’s anti-skimming solutions appears to have increased, with 32 percent of respondents reporting “deep insert” or “card reader internal” skimming devices inserted inside the card reader as most common. Another 31 percent said “throat inlay” skimmers, located in the throat of the card reader.

Asked about trends in the usage of these devices, 60 percent of respondents noted an increase in the use of throat inlay skimmers over the previous 12 months, and more than 50 percent of respondents reported an increase in deep insert skimmers.

The fact that deep insert skimming is spreading globally is a major concern. It has been described by one ATM deployer as “the biggest skimming threat facing the ATM industry today,” and one that the industry is not prepared for. This type of skimmer lies deep inside the card reader, silently capturing data from thousands of cards, but jamming or detection technologies give no protection. TMD Security’s Card Protection Plate defends against this type of skimming by filling the excess space inside the card reader that the criminal needs, so that the insertion of a deep insert skimmer, or a shimmer, is not possible.

Of those respondents who had experienced ATM shimmers, devices that are designed to compromise EMV chip card data, 75 percent reported a significant increase and three-quarters of

respondents who had experienced eavesdropping reported the trend as increasing. A new type of eavesdropping device, a “periscope skimmer,” has been reported recently in the U.S. It is “small enough to evade detection,” according to Payments.com, and “can hold up to 32,000 credit card numbers, and sport a battery life of up to fourteen days.”

Explosive attacks were the highest concern regarding physical attacks, with one-third of respondents saying this was their biggest worry. Furthermore, 24 percent said attacks to the ATM cabinet, top-box or fascia were their highest concern, 22 percent indicated theft of the ATM and 12 percent cutting.

According to the report, 41 percent of respondents having experienced explosive attacks reported that those attacks increased over the previous 12 months. The attacks were reported as constant by 45 percent of respondents. These concerns are consistent with the growing number of explosive attacks reported by EAST. The number of explosive attacks rose 80 percent in the first half of 2016, to 492 incidents, over the same period the previous year, which saw 273 incidents. Gas attacks represented 78 percent of these attacks, and solid explosives accounted for 22 percent.

Lachlan Gunn, EAST executive director, said, “This rise in explosive attacks is of great concern to the industry in Europe, as such attacks create a significant amount of collateral damage to equipment and buildings as well as a risk to life.”

Explosive attacks are not confined to Europe. Countries such as Brazil, South Africa and Australia saw the start of this trend, but attacks are spreading quickly as countermeasures are deployed and criminals move on to the next opportunity. The frustrating issue in trying to defend against explosive attacks is that most security solutions — such as ink staining, which “spoils the prize” by staining the notes inside the cassettes — do not react fast enough to be effective when an explosion occurs.

ATMIA’s 2016 fraud and security survey included a new category of physical attack that is targeted at the area of the ATM not protected by the safe. This includes the cabinet, top-box and customer-facing areas of the ATM, including the fascia. Fifty percent of respondents said that these types of attacks had increased over the previous 12 months, while 31 percent reported they had remained constant.

Industry collaboration is critical in winning the war on ATM crime, and surveys such as the one from ATMIA provide a valuable source of information in terms of crime trends. But as different types of attacks come and go from one country or region to another, one thing is certain: Criminals never give up. In the words of one respondent, “ATM security will be the main concern ... We need to share experiences and statistics.... Criminals are constantly inventing new ways to overcome defenses.”

Meanwhile, the ATM industry looks to new technologies that could help protect cardholders from fraud, for example. Six percent of respondents said that biometrics currently are being used for additional security at ATMs in their market, and 15 percent had plans to deploy. But widespread adoption of biometrics is not on the horizon, with 78 percent of respondents saying they had no plans for biometrics at the ATM.

Contactless is a technology that has created interest in the ATM industry. The speed and convenience of contactless technology are attractive, and there is a perception that contactless may be a way of protecting the cardholder from fraud at the ATM. However, all new technologies have their own risk profiles, and contactless technology is proven to bring new security risks and a range of opportunities for criminals to exploit consumers and their card data. Indeed, some card payment associations in Europe are advising against the use of contactless technology on ATMs until the fraud risks are fully understood and robust defenses are built into technology and transaction processes at the ATM.

In conclusion, despite advances in technology and the increasingly effective collaboration between deployers, industry associations, technology providers and law enforcement, there is no silver bullet to win the fight against organized crime. ATM security will continue to remain a priority for the foreseeable future. In the words of an ATMIA survey respondent: “It is a very challenging time for ATM operations, but equally one that will see the most committed financial institutions rise to the occasion. Vigilance and readiness to move with agility are key. At the end of the day, our business is a business of TRUST.”

Anti-skimming, Consolidation, Cardless Transactions to Rise in Importance

As it does with the ATM Industry Association (ATMIA), 2017 marks my 20th anniversary in the ATM industry. ATMIA and I have seen much occur in this industry over the years, both good and bad. Having lived through various levels of keypad regulations (DES, 3DES, VEPP, PCI), speech at the ATM to support the Americans with Disabilities Act (ADA), not to mention the dreaded Y2K, I believe 2016 may have been one of the most challenging years to date for independent ATM deployers (IADs). The U.S. move to EMV, driven by a liability shift instead of regulatory mandates, created more questions than answers for IADs and merchants alike. Given the “choice” to support EMV at their ATMs, many merchants have been very slow to adopt EMV. The recent decision to push the fuel pump liability date back to 2020 (from 2017) will only exacerbate the migration to EMV. Unless we see some highly publicized six-figure EMV liability shift claims in 2017, expect EMV to continue its slow and drawn-out migration.

As EMV continues its slow crawl to 100 percent adoption, what else can IADs expect to see and do over the next few years?

Anti-skimming technology will become more important. As EMV migration continues at a snail’s pace, fraudsters will step up their game and attacks on ATMs will grow. Already, we are seeing skimming devices being put not only on magnetic-stripe-equipped ATMs, but also on ATMs that are upgraded to EMV. Remember, just because an ATM has an EMV reader, that does not prohibit fraudsters from attempting to skim magnetic-stripe cards at that ATM. As long as non-upgraded equipment exists in the field, fraud opportunities will remain.



James Phillips
vice president of sales and marketing, Triton and ATMGurus

As vice president of sales and marketing for Triton and ATMGurus, James Phillips manages the marketing department and North American sales team consisting of account executives and sales managers responsible for Triton’s distribution network. During his 17-year tenure with Triton, Phillips has held various positions within the sales and product development departments, where his technical knowledge and understanding of the ATM business further enhanced his awareness of customer needs. He also plays a key role on Triton’s executive team. Prior to joining Triton in 1997, Phillips worked for Enterprise Rent-A-Car, where he managed several rental dealerships. He holds a bachelor’s degree in business administration and an MBA from the University of Southern Mississippi.

IAD consolidation will continue. As EMV migration costs continue to grow, coupled with increased maintenance costs and slowing organic growth in a mature market, expect to see further IAD consolidation in the U.S. The IADs who don't, won't or can't right-size their businesses to address these pressures will find it increasingly difficult to remain competitive in a mature market. Larger, well-capitalized IADs will find bargain acquisitions, and smaller, regional players who can control their costs, maximize returns and provide superior customer service will find winning niches.

Cardless, cardless, cardless. Seems this is on everyone's minds these days. Will cardless transactions truly take off at the retail ATM level? Sure, Tier I banks are rolling out cardless and mobile transactions for their ATMs, but those are focused solely on their cardholder bases, for the most part. I certainly believe there is a place for cardless at the ATM but don't believe it will happen right away. Why? For any alternative transaction to work at an ATM, there must be ubiquity. Every single cardholder in America knows he or she can walk up to an ATM (usually with the card already in hand) and get cash. In addition, several different technologies currently are vying to be "the" technology of choice. Remember VHS versus Betamax (or Blu-ray versus HD DVD for younger crowds)? There will be a winning technology, but until that occurs the ubiquity of cards will continue to dominate.

Certainly other stakeholder considerations in the retail ATM space will be in the coming years (EOL for Windows CE, cloud-based ATMs, open-source applications, near-field communication and so on), but many of these will require much more input and discussion from a broader industry perspective.

Wells Fargo ATMs to Offer Card-Free Account Access

Since the first ATM was installed in 1967, not much has changed in how consumers get cash. Fifty years later, with over 3 million ATMs worldwide (according to the ATM Industry Association), customers are about to be provided with a game-changing ATM experience. Wells Fargo soon will become the first large bank in the U.S. to upgrade its entire fleet of ATMs with card-free account access through One-Time Access Code mobile technology. This means customers may access any one of Wells Fargo’s 13,000 ATMs using only a mobile phone. Looking forward another 50 years, we believe plastic cards will be a thing of the past.

How it works

To use the service, customers first log into the Wells Fargo mobile app, select their ATM or debit card, and request a one-time eight-digit access code. The code expires after 30 minutes, at which time the customer may request a new one.

When the customer arrives at the ATM, he or she simply enters the eight-digit code followed by his or her personal identification number (PIN) and proceeds to the main menu to perform the transaction.

Mobile wallet compatibility

In addition to One-Time Access Code, later this year customers will be able to initiate a cardless ATM transaction with the “tap and pay” technology in a near-field communication (NFC)-enabled smartphone. When this feature is live, a customer will be able to initiate a transaction by signing into a leading mobile wallet (Wells Fargo Wallet, Apple Pay, Android Pay or Samsung Pay) and holding the phone near an NFC-enabled ATM terminal. Once authenticated, the customer will input the PIN and complete the transaction. More than 40 percent (more than 5,000) of Wells Fargo ATMs currently are NFC-enabled.



Jonathan Velline
head of ATM and branch banking, Wells Fargo

Jonathan Velline manages the Wells Fargo ATM business of more than 13,000 ATMs — the third-largest bank ATM network in the United States. Velline also is responsible for developing and implementing store technology, process, staffing and risk management strategies for the Wells Fargo network of more than 6,000 banking branches.

Giving customers options

As the first major financial institution to offer internet banking, Wells Fargo continues to be an innovation leader with this industry-first cardless ATM feature. But rather than innovating for innovation's sake, Wells Fargo prioritizes innovation with a purpose and a deliberate focus on bringing value to customers. With any of our innovations, from mobile banking to biometrics to mobile wallets and partnerships with startups, our goal is to provide customers with choice and convenience. Our focus on users' overall customer experience is what distinguishes us from competitors.

Cardless ATMs are just another example of our commitment to choice and convenience. Our customers who participated in the pilot already have shared stories of how this technology saved the day when they forgot their wallets or needed cash when traveling light. Some customers are more comfortable using a card, which is why we're pleased to offer more than one option to access cash. But for our nearly 20 million active mobile customers, blending our mobile and ATM channels represents the natural evolution of account access.

The Future of Self-Service Banking

The financial industry is under more pressure than ever before to transform to meet and exceed ever-changing consumer expectations, in an era when keeping costs low is an equal reality. Meanwhile, amid a prolonged period of rapid improvements in consumer technology, financial institutions are potentially at risk of appearing stagnant and losing customers to the bank next door if they do not modernize and innovate.

A crucial part of any bank's reinvention strategy has been, and will continue to be, the ATM. Celebrating its 50th anniversary in 2017, the ATM still is ranked as the No. 1 self-service channel and interaction method with a bank, even among smartphone users.

The ATM is expected to grow to be known as more than a one-dimensional tool to access cash. As the number of ATMs grows globally, the ATM will evolve to become an interactive touchpoint for consumers requiring secure, reliable access to cash, while also enabling transactions such as check and mixed media deposit, all carried out with an experience similar to the devices consumers use throughout the day, such as a tablet or smartphone.

The growth in the ATM channel is expected to happen rapidly. The latest industry forecasts¹ predict that the number of ATMs installed globally will grow to 4 million by 2021, up from 3.2 million in 2015.

This expansion undoubtedly carries both opportunities and challenges for ATM manufacturers. It is imperative that companies like NCR develop and implement self-service technologies able to adapt to user demand, and provide a consistent look and feel across in-bank, branded hardware and software and personal devices.



Jose Resendiz
vice president and general manager of financial services solutions, NCR Corp.

Jose Resendiz is vice president and general manager of financial services solutions at NCR Corp.

¹ Retail Banking Research (RBR)

Innovating from outside a vacuum

Failing to innovate and modernize puts financial institutions at risk — not just at a hypothetical risk, but rather real, millions-of-dollars-lost annual risk. We are seeing many technologies developed and built into ATMs, and other technology is not far off. Contactless accessibility, which enables mobile prestaging and cardless ATM access, is happening now, even if consumer uptake varies country to country. Both [Barclays](#), which in November rolled out contactless mobile cash access in the U.K., and Australia and New Zealand Banking Group (ANZ), which [deployed tap-and-pin functionality](#) in 2015, have provided customers with more secure, reliable and convenient access to cash, reducing transaction times in some instances by up to 50 percent.

Biometric authentication is another category offering significant promise for the ATM channel, opening up stronger security capabilities and increased convenience for the end user. India's DCB Bank is set to enable [biometric authentication](#) via the Aadhaar ID system for cardless ATM transactions. In the United Arab Emirates, Abu Dhabi Islamic Bank has rolled out [voice-activated ATMs](#) for visually impaired users.

In a broader context, the entire branch will continue to evolve in 2017 from being only a day-to-day transaction environment to a sales and service environment. Financial institutions will continue to invest in self-service technology and also likely will expand remote video conferencing function. For instance, several banks have made interactive ATMs available, and banks like Royal Bank of Canada recently introduced video conferencing for small-business banking.

Banks also will have new security threats to contend with and more and more data to handle. Cutting-edge technology with built-in [security solutions](#) that incorporate behavioral, predictive and cognitive analytics is likely to prove increasingly valuable when it comes to understanding and forecasting certain patterns, on the part of customers as well as machines. This will put financial institutions in a stronger position to identify anomalies and threats.

Combined with the swift global uptake of digital banking, the improvement in voice-recognition and artificial intelligence seen in platforms such as Amazon Alexa and the future applications of virtual reality, all signs point to exciting growth and innovation in this area over the coming years.

ATMs at 50: Prospects for the Next Generation

On reaching its 50th birthday, the ATM could be considered to be more important to banks and consumers than ever before. This is due to four main factors:

- Continued bank branch closures creating a transactional vacuum for accountholders, which ATMs are best positioned to fill
- The ability of the ATM to reach and include the underbanked and unbanked, the final frontier for the growth of banking
- Ongoing strong global demand for cash and cash services in both mature and emerging economies
- The fact that ATMs are where card networks and digital channels, including mobile apps, meet the streets and places where people work, shop and transact in their daily lives

In short, ATMs in 2017 are the friendly face of 21st-century banking.

Yet, challenges remain, such as:

- Shrinking margins for deployers in mature ATM markets, especially because of rising costs of compliance and declining interchange, the core driver of ATM economics
- Risks of regulatory overkill when authorities try to impose counterproductive and unworkable measures or limits
- Increasing market consolidation, stifling competition and entrepreneurship
- Skimming and other forms of attack
- The existential threat of the war on cash



Michael Lee
CEO, ATMIA

Mike Lee is CEO of the ATM Industry Association, a nonprofit trade association with more than 1,100 members in about 50 countries. He also is founder of the Global ATM Security Alliance, and is a qualified futurist with an MPhil degree in Futures Studies (cum laude) from the University of Stellenbosch business school in Cape Town.

The ATM certainly has found its place in the world, its global market niche. But the ATM revolution of the past 50 years is not yet over. Not only does the industry need to meet these key challenges, but it also needs to find a path to the next generation of ATMs.

Now that the ATM has changed the world, it's the world's turn to change the ATM as it adapts to dominant consumer technologies. Money is becoming more mobile, more digitized and faster in transaction time. In addition, money is taking on many different forms, from bitcoin to remittances via mobile phones, from credit card payments to online banking transactions. Despite the rise of digital cash substitutes and the multimillion-dollar marketing campaigns aimed at discrediting cash (even though it's one of humanity's most enduring and successful technologies), the majority of people show no real appetite for relinquishing the use of cash as a payment method, store of value or back-up system. This is evidenced by the robust year-on-year increases in demand for currency in circulation around the world.

That's why cash provision will remain a core function for the world's more than 3 million ATMs well into the future. At the same time, ATMs are reinventing themselves into what Ron Delnevo, ATMIA Europe's executive director, calls "community financial services hubs."

Here's what NCR's CEO, Bill Nuti, told ATMIA ahead of his much-anticipated keynote address at our ATMIA Europe conference set for June 2017 in London: "ATMs have become far more than machines that dispense cash. They are portals into a full array of technologies that let people bank anytime and anywhere. ATMs are now at the forefront of omnichannel technologies that are redefining the digital economy."

Great thought leadership, innovation and widespread industry discussion currently are being invested in this technological reinvention. The search is on to determine the shape of things to come for ATMs.

In general, one doesn't need to be a rocket scientist to realize that the future will be largely software-centric for the ATM industry. For example, if ATM deployers were to migrate their operating software en masse to the cloud, this would profoundly affect the future of hardware, which would become much lighter, more streamlined and with a "less is more" minimalist look and interface. Let's call this the ATM-lite future. Others refer to thin-client ATMs or cloud ATMs. Will thick-client ATMs one day become a thing of yesteryear, destined for the museum?

Either way, I sense the ground of our industry shifting.

And it's a software revolution. In addition to the cloud's potential to reshape ATM hardware, apps are becoming vital to banking in a mobile world. Banking apps can be downloaded to customers' smartphones, a popular new interface. Fortunately, the major vendors already have or are working on apps, so the ATM industry is set to embrace its software-centric future fearlessly.

Software also enables application programming interfaces (APIs). Wikipedia defines an application program as "a computer program designed to perform a group of coordinated functions, tasks, or

activities for the benefit of the user” (italics added). Examples of APIs for ATMs would be programs enabling cardless transactions at ATMs. Incidentally, an era of cardless cash is dawning as global card usage probably will peak, in my estimation, by about the early 2020s. This is another significant change ahead for our industry.

Wikipedia goes on to say, “Applications may be bundled with the computer and its system software or published separately, and may be coded as proprietary, open-source or university projects.” This latter point is important because there is much talk in our industry about the need for greater ATM standardization and commoditization to lower costs, create greater flexibility and speed up time-to-market for new products, services and technologies (such as near-field communication and biometrics), as well as new transaction options.

In recent times, I’ve seen enormous market pressure being exerted on the industry to make ATMs more nimble, simpler and much more adaptable. Part of that pressure comes from the threat of disintermediation by big retailers, internet giants and fintechs through new business models and smart use of simple, interoperable and ubiquitous technologies.

This is where ATM standardization comes into the discussion: to create open APIs and open apps for ATMs of the future, ones that are, by definition, OS-agnostic. Think of all the benefits of open banking APIs for both deployers and customers, such as interoperability, lower costs, increased ubiquity and greater ease of use. It also will become much easier in a more standardized ATM industry to continuously enable new customer experiences. We’ve seen in mobile platforms, for example, that phone apps have become interoperable on both iOS and Android devices. What about attaining that kind of interoperability for ATM apps of the future? It all makes for consistent user experience and service.

It’s wonderful to me that 2017 will see not just the 50th birthday of the ATM but also a milestone of great significance for the future. Soon, some of the world’s biggest ATM deployers will send an industry request for information for next-generation ATMs to vendors, outlining their vision of the future (the details of which I’m not at liberty to disclose, for obvious reasons).

I foresee a future of much more nimble, commoditized, standardized ATMs, some with operational software based in the cloud, others offering a variety of cardless and mobile services and still others equipped with Bluetooth iBeacons that connect the ATM to mobile customers, serving the cash users of this world for the next generation and beyond.

Organized Fraud Rings Target U.S. ATMs

ATM fraud is growing around the globe, with massive attacks being orchestrated abroad in recent years using malware and coordinated cyber schemes to steal millions. In the United States, the newest forms of fraud have not yet struck, but challenges for protecting ATMs continue to abound. ATM fraud is growing rapidly; FICO noted a 546 percent increase in the number of U.S. ATMs compromised by criminals from 2014 to 2015. With skimming the No. 1 problem, the largest U.S. banks are gearing up to fight global problems — knowing that malware and hackers eventually will target this market. In Q4 2016, Aite Group surveyed 63 executives at U.S. financial institutions (FIs) of many sizes, representing the full spectrum of U.S. FIs. Given the size and structure of the research sample, the data provide a directional indication of conditions in the market.

Current and anticipated threats

In the United States, the bulk of ATM fraud is the old-fashioned kind, primarily skimming. As EMV cards are issued and ATMs are upgraded to accept EMV chip transactions, some of the fraud should decrease. Currently, counterfeit cards still can be used by fraudsters to steal funds, since many ATMs are not yet equipped to accept EMV-enabled cards. MasterCard required ATMs to be upgraded to process EMV transactions by October 2016; Visa was more lenient with the time frame and requires that ATMs be upgraded by October 2017. Many FIs are upgrading in advance of these deadlines since most ATM fraud involves their own customers' accounts.

Organized fraud rings seek to strike FIs' weakest areas to commit fraud. In recent years, many FIs have focused on improving fraud-prevention capabilities in the online and mobile channels, and little attention has been paid to ATMs.



Shirley Inscoe
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Shirley Inscoe is a senior analyst specializing in fraud and data security issues in financial services for Aite Group, a research and advisory firm headquartered in Boston. She developed a strong background in these areas during her 30 years in retail banking. During her banking career, she chaired the BITS Fraud Reduction Steering Committee and co-chaired Early Warning Services Advisory Committee. Inscoe has presented at many major industry conferences, including various BAI, NACHA and ABA events.

The current threat environment for ATMs in the United States has been fairly consistent in recent years; other parts of the world have experienced malware threats that have not yet been directed toward the U.S. market. The primary reason for this difference is that all other G20 countries rolled out EMV cards many years ago. Because counterfeit cards no longer could work to steal monies in those markets, fraudsters had to evolve to new methods. Since the U.S. market was still relying on magnetic-stripe cards, fraudsters weren't forced to come up with more sophisticated methods to steal. In many countries, ATM security has not been upgraded (other than EMV compatibility), so the machines made for an easy target when new methods of committing fraud were devised.

Skimming devices often are attached to ATMs and are used to capture the magnetic-stripe information when a customer inserts an ATM or debit card into an ATM. When skimming devices were first used on ATMs, they often were easy to spot. This is no longer the case, because fraudsters have invested in matching the exact color of the device to the ATM surround. The skimming device fits smoothly against the exterior and can be quite difficult to detect unless a person is very familiar with the machine. In sophisticated attacks, all the captured data are transmitted electronically to a remote server.

Common threats against ATMs are described in Table A.

Table A: Types of ATM attacks in the United States

Threat	Description
Skimming devices	Skimming device is attached to ATM; it captures data from the ATM or debit card magnetic stripe when customer uses it in the machine. It often is used in conjunction with a camera to capture PINs as entered on the keypad.
Cybercrime	Hackers have conducted cybercrimes in other countries (primarily in Europe and Asia) against FIs' ATMs by overriding network controls and stealing millions of dollars in coordinated attacks. In many cases, malware was introduced to ATMs or the network itself to facilitate the fraud scheme.
Cash and card traps	These traps are physical items inserted in ATM openings that block withdrawn cash from being delivered to the customer or block a card from being returned to the customer. Cash or cards are retrieved by fraudster after customer departs.
Physical theft of ATM	Some cities are seeing an upsurge in theft of entire machines; some law enforcement agencies have located warehouses full of stolen machines. Attacks primarily target machines in large metropolitan areas.
Internal fraud	FI employees may work independently or in conjunction with a fraud ring to steal cash, cards or data from ATMs. Alternatively, cards may be intentionally issued to members of a fraud ring.

Source: Aite Group

In the U.S., ATM skimming is definitely considered the most severe threat, with 68 percent of executives classifying it as a very severe or severe threat. Cybercrime is seen as the next most critical threat, with 49 percent of executives grading it as very severe or severe. Sixteen percent of respondents view the physical threat of ATMs as no threat at all; this category is most likely to have a geographic component since this is primarily a big-city problem. Some large FIs that have experienced ATM theft are installing detectors that will send alarms if machines are moved. Somewhat surprisingly, 78 percent of executives view internal fraud as no threat or low threat; the challenge may be that these FIs do not have adequate detection capabilities in place to uncover internal fraud. Forty-four percent of executives believe card and cash traps are a moderate threat.

Fraud mitigation

FIs constantly assess their fraud-prevention capabilities to detect gaps that need to be filled and to attempt to get one step ahead of fraudsters. It is a difficult game of cat-and-mouse, with fraudsters having many advantages; committing fraud is their full-time job, and all the monies they steal are tax-free income that can be used to continue to commit more fraud. Many organized fraud rings are run similarly to a business, with well-defined goals and strategies. Fraudsters also take advantage of technology in many ways, automating their attacks and replacing humans with bots that don't get a cut of the stolen monies. Furthermore, using automation allows attacks to be coordinated more easily, without having to recruit as many mules.

Clearly, FI executives are at a disadvantage; while their full-time jobs might be to combat fraud or conduct investigations, they also have to deal with responsibilities such as departmental budgets, contingency planning and regulatory compliance requirements, just to name a few.

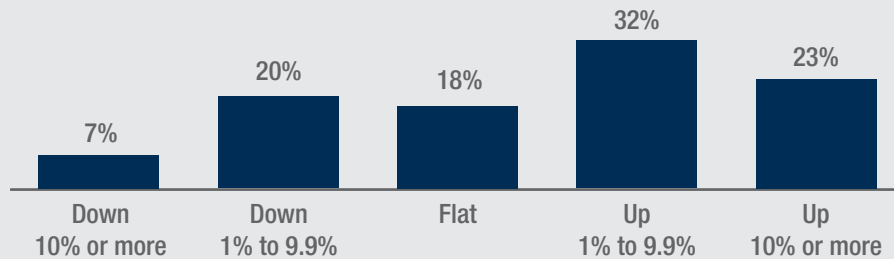
FIs can use several technologies to mitigate ATM fraud. Some of these technologies are widespread in other countries but have not yet been widely installed in the U.S. For example, over 80,000 biometric ATMs have been installed in Japan since 2006, when legislation was passed in that country requiring banks to pay for fraudulent charges. Technologies that over half of executives rate as at least highly effective include skimming prevention/detection (74 percent), biometrics (63 percent), malware detection (62 percent) and ATM system monitoring (60 percent). Cameras were ranked as extremely or highly effective by 46 percent of executives.

ATM fraud losses

ATM fraud losses fluctuate over time, depending on what crimes are targeting the machines. Over half of executives surveyed state that ATM losses are up in 2016 compared to 2015; 32 percent state they are up between 1 percent and 9.9 percent, while 23 percent state they are up 10 percent or more. Losses are down at 27 percent of FIs; 7 percent of executives say their ATM fraud losses are down 10 percent or more, while 20 percent say they are down between 1 percent and 9.9 percent compared to the same period last year. An additional 18 percent of FI executives state that ATM fraud losses are flat compared to last year (Figure 1).

Figure 1: Current year fraud losses compared to prior year

Q. Please compare your institution's ATM fraud losses year to date in 2016 compared to the same time period in 2015 (n=60)



Source: Aite Group's survey of 63 U.S. FI executives, October 2016

Conclusion

ATM fraud is evolving and is becoming more sophisticated; the fraudsters behind it are becoming increasingly organized. In light of the new ATM fraud challenges being experienced around the world (which will eventually reach U.S. shores), here are a few recommendations for FIs:

- Monitor ATM fraud of all types to ensure steps are taken to keep it in check as organized rings increasingly target this delivery channel.
- Ensure that installed security is updated periodically as threats change, particularly anti-skimming and motion-detection capabilities.
- Prepare for malware to be used in the United States, because it is certain to migrate eventually. Determine the vulnerabilities present in current machines as well as the networks the FI participates in.
- Consider biometric ATMs as older machines are fully depreciated and replaced. As consumers are becoming more accustomed to taking selfies and using fingerprints to authenticate themselves in other channels, they are likely to appreciate the increased security and convenience of these ATMs.

2017: The Year FIs Become Consumer Responsive

2017 will see FIs continue to focus on building out customer experiences that matter. As a result, we'll see higher priority put on technologies that are tied directly to helping companies deliver better outcomes and become more consumer responsive. In the ATM channel, this means equipping ATMs to do more, not just because they are part of a cost-reduction strategy, but also because they are an established, efficient way for FIs to extend service offerings and add more value to their customers' interactions.

As ATMs do more, channel management solutions also will need to do more. For decades, ATM channel management budgets have been mostly allocated to monitoring initiatives that measure the health of the ATM channel. This channel used to be monitored in terms of device uptime and availability and, more recently, transaction completion rates and timing. But for FIs that are committed to positioning the customer experience center stage, the days of a one-dimensional operational view are numbered. And so are the days of a siloed approach to ATM channel management. Customer interactions no longer are contained to any one channel, so why should a channel management initiative be?

To successfully stay on top of the growing consumer migration toward self-service banking, the increasing number of complex cross-channel transactions, the explosion in third-party APIs, the smarter fraudsters and the expanding multichannel service offerings such as mortgage and loan applications, FIs will need to continue morphing their channel management strategies. They need to start thinking about how they are going to tap into timely data intelligence to amplify the customer experience — we're talking real-time feedback related not only to operational performance, but also to consumer usage, cash flow movement, channel profitability, EMV fallbacks and transaction anomalies — across all banking channels.



Stacy Gorkoff
*VP of marketing,
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Stacy Gorkoff is the VP of marketing for INETCO Systems Limited. She has spent more than 15 years working with leading-edge technology companies such as INETCO. Gorkoff is passionate about fintech innovation, and she loves helping customers uncover new revenue streams and deliver an amazing customer experience.

The past few years have given way to impressive technology advancements in the areas of real-time data collection and correlation, customer segmentation and data analytics. Not only is the timing right, but now it is technologically possible for FIs to fully embrace channel management from an omnichannel perspective. The number of teams that can gain successful access to timely data is multiplying, too. Analytics is no longer a function that needs to rely on IT operations teams to gather data, or someone with a data analytics Ph.D. to analyze the data, thanks to improved data collection and visualization techniques. New channel management dimensions — such as card usage, revenue generation and transaction anomalies — can be monitored in real time, with relevant data being delivered and displayed in a way that makes it easy for “analytics novices” and channel managers to make timely decisions. An example of this is Google Analytics for omnichannel banking environments.

I see 2017 as the year when advances in channel management support an FI's need for speed, smart decision-making and relevant data visualization. It's the year when we will see more real-time data strategies being driven by teams involving multiple departments and channels, working toward the common interest of acting on all things affecting the end customer experience. This translates into better operational awareness, more insight into customer behaviors and continuous, real-time tracking of revenues, program spend, cash replenishment, EMV fallbacks and transaction anomaly detection within each banking channel, including the ATM channel.

What's in Store for ATMs in 2017?

The ATM industry has never been as fascinating and exciting as it is right now. Whether in a retail bank, independent ATM deployer, network processor, hardware vendor, cash management or service provider, ATM technology is rapidly evolving to help the organization stake out a strong position in the payments ecosystem, enhancing the customer experience and managing risk.

At Elan Financial Services, we are fortunate to work with several different ATM market segments — from banks and credit unions to independent sales organizations and independent ATM deployers, from core processors to electronic funds transfer networks — as well as to provide cash management and ATMs to gaming properties and casinos.

2017 promises another great year of innovation for all segments of the ATM industry. Let's take a look ahead.

Cash recycling

In 2017, we will see ATMs helping organizations generate efficiencies in the entire cash cycle. Cash recycling will continue to grow in the ATM networks. Cash-recycling devices use a customer's deposited cash for future withdrawals, reducing the frequency of cash replenishments. They are proving to be effective for optimizing branch time and resources.

Cardless ATM transactions

Cardless ATMs first appeared in Spain in 2011, but they are starting to take off in the United States. Most of the top-tier banks in the country are either offering or planning to offer ATMs that will require only a smartphone to withdraw money from a customer's account.



Suzanne Galvin
*SVP of Elan
Financial Services*

As the executive heading up the strategic and product management functions at Elan Financial Services, a business unit within U.S. Bank, Suzanne Galvin oversees the acquiring and processing areas of the ATM and debit group as well as the expansion of MoneyPass, the leading surcharge-free and POS national network, comprising over 25,000 ATMs and 90 million cards.

Galvin led product line development globally for financial services at NCR Corp. followed by P&L management of the ATM and debit portfolios at Washington Mutual Bank (WaMu) and serving as transition executive through the merger with JPMorgan Chase. She holds a Bachelor of Science in management from Trinity College, Dublin, Ireland, and an MBA from the University of Ottawa, Canada.

Most will still work with debit cards. The important thing, though, is that smartphone-only transactions will be embedded into the ATM infrastructure on a large scale. In 2017, processes around cardless ATM transactions will become more available and more streamlined, but banks aren't replacing the debit card. Cardless ATM transactions are about giving consumers, particularly millennials, an additional convenient option for accessing their cash.

Branch transformation will continue to grow

As vendors develop new video and interactive technology for ATMs, the machines will fulfill some responsibilities that tellers once had at bank branches, such as depositing checks with cash back, cashing checks, making balance transfers, paying bills or paying mortgage balances. As a result, branch staff can be reassigned to higher-level tasks, such as consulting with customers on business banking, mortgages and auto loans.

Dispensing cash in multiple denominations

Because of consumer demand, financial institutions will start introducing ATMs that dispense cash in multiple denominations. Some domestic ATMs already are dispensing \$1, \$5, \$20 and \$100 bills.

Skimming, ATM security and new biometrics technology

For the past couple of years, the fraud analytics firm FICO has reported the highest ATM compromise rate ever recorded by its FICO® Card Alert Service. Much of this can be attributed to criminals targeting ATMs that have not yet been upgraded with EMV chip technology.

The most dangerous threat has come from ATM skimming, which occurs when an ATM is compromised by a skimming device — a card reader that can be disguised to look like a part of the machine. The card reader saves the user's card number and PIN code, which then are replicated into a counterfeit copy for theft.

Fortunately, some of the leading vendors have developed technology that protects against skimming. Newer ATMs are equipped with this technology, but for the most part these devices can be installed on older models as well. These anti-skimming devices can extend the lifespan of existing ATMs.

Around the world, consumers are accessing their accounts by using biometrics, such as scanning one's palm print or iris. While these biometric technologies are promising, Kaspersky Lab investigations show that cybercriminals already are researching devices that could illegally obtain data from palm vein and iris recognition systems.

The good news is that the industry is working to improve and perfect ATM authentication technologies.

Summing things up for 2017

Innovation in the ATM industry will continue unabated in 2017. Expect more exciting advancements in security and safety as well as touchscreen technology and programs to increase ATM adoption and profitability. We are at the dawn of an era when entirely new categories of ATM applications will begin to be introduced. Stay tuned and continue to rethink ATM strategies to take advantage of all the exciting new technologies.

Four Key Trends Lead to Personalized Banking Experience

This year will be exciting for consumer banking technology. 2016 saw the continued rise of innovative technology, such as biometrics and mobile wallets and the evolution of the bank. In 2017, we're focused on four key trends that will continue the progress of 2016's innovations while sparking new ideas.

Individualization

In 2016, we saw beacon technology introduced into the market; in 2017, we will begin to see wider adoption in retail banking environments as consumers demand a more personalized experience from their banks. Beacon technology is relatively cheap, enabling institutions to adopt it at scale more easily and allowing banks to identify customers as they approach a branch or ATM to create a customized experience for them when they enter. Last year, we [explored the benefits of beacon technology](#) with Cuscal, an Australian payment solutions provider.

The future of self-service depends on the trends that consumers are driving: they expect a personalized experience, driven by clever uses of their own data, and there will be an effort to combine all of these consumer demands to try to be the one providing a one-stop, completely tailored experience with the best-leveraged data and the personal touches that make customers feel as at home as possible.

The groundbreaking idea won't come from the organization trying to reinvent the wheel. It will come from the organization who is taking the lead from customers and providing better, smarter, faster solutions that are secure, mobile-integrated and intuitive and fit seamlessly into customers' lives.



Devon Watson
vice president of software strategy and innovation, Diebold Nixdorf

Devon Watson is vice president of software strategy and innovation, leading the team that develops novel solutions and business strategies spanning payments, fintech and banking. He was an early team member at Apprenda, a category-defining application platform at the forefront of the private cloud computing industry. While there, Watson was responsible for business development with top cloud computing providers, as well as enterprise sales.

Digitalization

“Digitizing” channels will take on new meaning. Over the past few years, we’ve seen large investments in digital channels from both banks and retailers. The focus has been on digitizing the physical branch, but that isn’t limited to moving the operation to online-only. We can expect to see an increase in operations seeking to better equip and better connect their branch and store personnel to the main operation and to the customers themselves, to provide personalized, data-enriched service. Adding new data services to generate insights about online and offline behaviors will allow banks to increase their value in both the merchant and consumer spheres. It allows them not only to provide the best service possible, but also to identify how to connect them to each other and from what channels of connection they will get the most value.

Physical channels that provide human interaction are strong differentiators. The institutions that will win will be the ones that are able to integrate digital elements into existing physical channels to provide more personalized service with an efficient delivery model. A great example of this is ATM usage: According to a recent report by Diebold Nixdorf and a major U.S. bank, ATM usage has remained steady since 2014.

Among the proliferation of digital payment platforms such as Apple Pay and Samsung Pay, usage patterns for traditional channels are holding steady — the way forward is interoperability.

Another example of this continued blend is Amazon Go, which is comparable to Diebold Nixdorf’s Connected Shopper experience, [which we debuted at Money 20/20](#). The technology revolutionizes the retail shopping experience found in physical stores to make it more informed, more convenient and more secure.

This blending of physical and digital channels, of which we see the evidence every day, supports Diebold Nixdorf’s view of the future branch, in which contactless, mobile technology integrates seamlessly with traditional channels.

Miniaturization

At last year’s Money 20/20 conference, we made waves by debuting our tiny, contactless ATM concept. As technology gets physically smaller, it will take up less of a footprint in the retail space — freeing up valuable room and allowing for greater incorporation into daily transactions and business practices.

Our concept, an ATM that is [less than 10 inches wide](#), is part of our integrated view of the future of retail, which we call Connected Commerce. We also are working to stay ahead of trends and enable our customers to incorporate mobile solutions, such as the ability to build a shopping list at home or access funds with only a fingerprint or the nearby presence of a card, without having to swipe or insert it at all. This miniaturization, both in technology size and the ATM interaction process itself, is going to be a big part of the future of Connected Commerce.

Automation

Efficiency is key going forward. Heightened levels of customer service and deployment of new technologies are going to come together seamlessly only when consumers aren't made to feel as if they need to jump through hoops to get there. Security, convenience, personalization and all these other keystone factors that we'll be seeing in 2017 combine in the middle ground of automation. To create the personalized, seamless banking experience that customers desire, banks should automate everything they possibly can, and technology should be used to make every part of the customer experience better.

This will allow banks to use customer data to drive acquisition, retention and ultimately revenue. There is no need to write off automation as a danger to physical, human jobs. The automation that will be most successful must be integrated with the human experience, too. Instead of replacing humans with machines, financial institutions will rethink where humans are inserted into the banking process, using data-driven insights to understand when a person just needs to talk to another person, despite the proliferation of efficient digital tools.

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