

ATM Deposit Automation: The Start of Something Good



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Nov 2004

Reference # V41:09N

TowerGroup Take-Aways

- The big year for ATM deposit automation will be 2007, when the largest US banks are full swing into the replacement of thousands of machines and smaller banks will have just begun deploying automated ATM deposit processing.
- The Check Truncation Act for the 21st Century is affecting so many areas of financial services that it is difficult to fathom all of its implications, but deploying automated deposit processing at the ATM is a clear-cut benefit from this legislation.
- The complexity of the ATM deposit transaction today lends to the high costs and vulnerabilities to fraud that banks currently experience; eliminating the envelope alone will save banks 10% of the fraud that originates at the ATM.
- The US banking industry stands to save over \$2 billion annually from decreased transaction costs by automating the ATM deposit.
- Fraud reduction creates even more savings, none of which rely on moving deposit transactions from the teller to the ATM.
- The top 10 banks in the US are currently working on an ATM deposit automation strategy; banks that haven't yet deployed will do so in 2005.

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Report Coverage

This TowerGroup Research Note looks at the current state of ATM deposit automation strategies being developed by top banks in the US. Previous TowerGroup research investigated the advent of deposit automation and check truncation at the branch made possible by new legislation that eliminates the requirement for paper checks (see TowerGroup Research Note V37:18N, *Check Truncation at the Branch: Getting the Most from Check 21*). This Note examines the impact of that legislation on check processing at the ATM and discusses how banks are preparing to deal with the potential to reduce costs and improve customer service by automating deposit processing at the ATM.

Background

TowerGroup estimates that anywhere from 20% to 50% of any particular bank's deposit transactions come in through the ATM channel. (These transactions constitute 15% of total ATM volume in the US.) Although the ATM might be expected to save money for banks, in fact each ATM-based deposit transaction costs the bank as much to process as the same deposit transaction done at the branch teller, if not more. The cost to process an ATM deposit in the US today ranges from \$1.50 for an ATM at a self-sufficient branch to \$2.00 or more for remote or off-premise machines serviced by third-party armored carriers. (This compares to an average teller cost of about \$1.40 to process a check deposit.) The amount of manual processing necessary for an ATM deposit is onerous, expensive, and fraught with potential for error and losses from fraud. It starts with emptying the machine under dual control, proceeds to transporting the envelopes to proofing centers, and finally involves staff, under rigorous controls, opening the envelopes and accounting



for the cash and checks they contain.

When the US Congress passed the Check Clearing for the 21st Century Act (Check 21), it intended simply to end the logistical burden of and reliance on the physical transportation of paper checks from institution to institution. Check 21 promises to transform the largest operational area of the bank, deposit processing, throughout the institution, from branch to commercial client to lockbox to ATM. The ATM deposit in particular is one of the riskiest retail financial transactions the bank offers, and it defies the low cost structure normally associated with automated self-service delivery. For these reasons, ATM deposit processing stands as perhaps the second largest benefit to be gained by a bank's movement to Check 21-enabled deposit processing, the first being the benefit gained from its effect of significantly reducing the back-office processing structures. For more information on the impact of Check 21 to back-office processing, see TowerGroup Research Note V39:20RWP, *Check 21: Is IRD Really a Four-Letter Word?*

Recent dialogues held with the top banks and ATM processors in the US show that banks have been studying every implication of Check 21 over the last two years, from the branch to the back office to the ATM. Most banks have identified clear benefits to automating the deposit process at the ATM. It seems that institutions are poised to introduce deposit automation at the ATM, but some unresolved issues may temper deployments over the next 12 months. Nonetheless, TowerGroup believes that the arguments to move to an automated deposit process at the ATM will overcome any hurdles present today and banks will make considerable progress in 2005 toward modern deposit processing at the ATM.

ATM Deposit Processing: The Envelope, Please

Understanding what makes the ATM deposit so well suited to automation requires a view of the entire process as it works today. Exhibit 1 depicts the workflow for a deposit transaction from customer to accounting in the bank's back office.



Traditional ATM Deposit Processing Flow

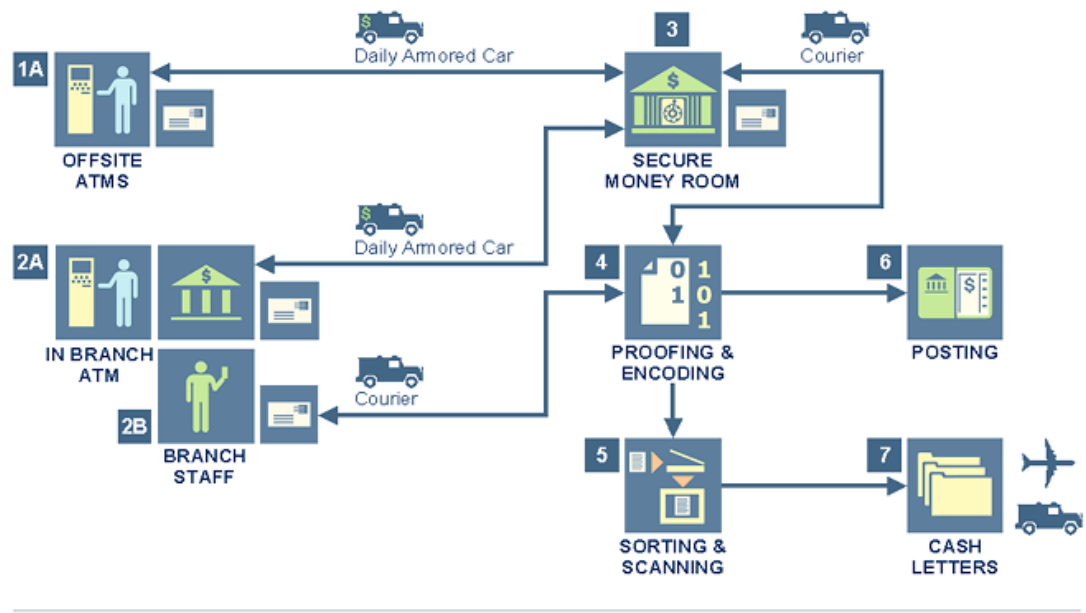


Exhibit #: 41:09NE1
Source: TowerGroup

Exhibit 1
Traditional ATM Deposit Processing Flow
Source: TowerGroup

Workflow for a Deposit Transaction

1A. A customer deposits an envelope presumably containing cash or checks or both at an offsite ATM. An armored carrier picks up the envelopes from off-premise ATMs daily and takes them to a secure money room.

2A. A customer deposits an envelope presumably containing cash or checks or both at an ATM located at a bank branch. An armored carrier picks up envelopes from in-branch ATMs daily and takes them to a secure money room.

2B. Alternatively, branch staff under dual control may open up the ATM vault, pull and open the envelopes, strip cash from any envelopes present and substitute a cash ticket in the envelope, which then gets picked up by traditional courier service and taken to a proofing center along with the rest of the branch's work.

3. Bank staff open sealed envelopes in a secure money room, where dual-controlled procedures are used to strip the envelope of cash and cash tickets are inserted. Deposits are then taken by courier to a proofing center.

At this point, deposit processing proceeds in the same way that a teller deposit would:

4. Deposit items are proofed and encoded at a regional or central deposit processing site.



5. Checks are shipped to and processed at the bank's items processing facilities.
6. Customer accounts are updated on the local bank host system.
7. Cash letters are generated, and checks are transported to the originating bank.

Opportunities for Fraud in the Deposit Workflow

Exhibit 1 suggests the complexity involved in the process of getting a deposit from the customer to the accounting systems, and it exposes the opportunities for error and fraud:

- The customer can, intentionally or not, insert an empty envelope into the ATM and (based on bank policy) withdraw funds against the deposit.
- The customer can, intentionally or not, deposit a fraudulent check into the ATM, and again using generous bank policy on cash back, withdraw some or all of the face value of the bad check before the funds can be verified.
- The customer may, intentionally or not, enter a deposit amount through the keypad that does not agree with the face value on the check and (again) withdraw cash based on an inconsistent deposit transaction.
- The reliance on armored carriers to transport envelopes increases cost compared to the cost of standard courier services.
- The manual handling of the envelope to extract cash increases the chance of error and fraud by bank staff.

All of these possible events at a minimum lead to expensive reconciliation and adjustment processing. In the worst case, they constitute a large amount of fraud loss for the bank.

The Check Stops Here

Automating the deposit at the ATM involves making a number of changes to today's convoluted process. In its final form, including truncation of the check at the ATM, full deposit automation would make the following fundamental modifications to today's routine:

- The customer would no longer insert cash and checks into an envelope. Instead, cash and checks would be inserted directly into bulk note and check acceptors in the machine. (The technology exists to recycle the cash, generating further savings by reducing the number of visits to replenish the cash in the cartridges.)
- The ATM reads the courtesy amount on the check using courtesy amount recognition (CAR) software and specialized imaging hardware. It can also read the magnetic ink character recognition (MICR) line at the bottom of the check, reading the bank routing and account numbers. It also counts the number and amounts of currency inserted.
- Any discrepancy between the CAR amount and the amount entered by the customer are immediately pointed out to the customer for verification or correction. The ATM alerts the customer to any currency that the machine has found to be counterfeit and can return suspect notes or cancel the entire transaction.
- An image of the check, along with check data, is sent to a back office together with transaction information for proofing and posting.
- An image of the check is printed on the customer's receipt.
- Armored carriers visit the ATM once a week to replenish cash. Since the checks are deposited into a separate vault from the cash, they can be picked up by a nonarmored courier service.

Since the new ATM directly accepts cash and checks, there is no opportunity for empty-envelope fraud. This alone prevents much of the fraud taking place today. There is also no longer a need for



a secure site in which to open envelopes and create cash tickets. The human factor has been removed to a large extent and with it the possibility for error and further fraud. Even before full truncation takes place at any particular institution, the ability to accept deposits without an envelope and print images of the check on the receipt greatly improves the deposit process.

Exhibit 2 shows the new process for taking deposits at the ATM.

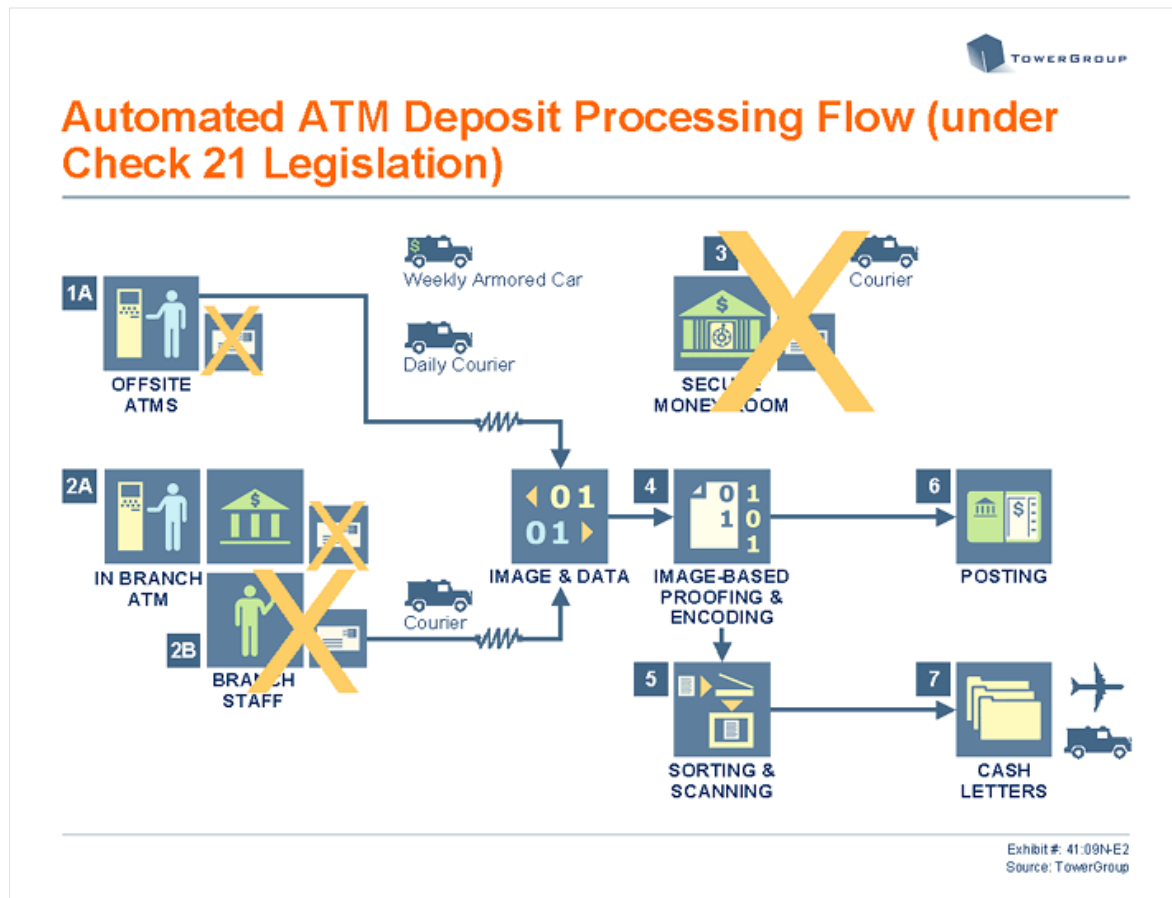


Exhibit 2
Automated ATM Deposit Processing Flow (under Check 21 Legislation)
Source: TowerGroup

Primary Drivers to Automate the ATM Deposit

Simplifying the ATM deposit process sounds like a good idea. But when banks consider a project with such a wide scope as check processing, there need to be solid business benefits to offset the costs that are incurred. This is especially true in this case, where new ATM hardware for the network constitutes a large capital expenditure. Dialogues with the top banks in the US about their ATM deposit processing strategies have revealed three consistent themes driving the adoption of automated check processing at the ATM among all banks.

Reducing Fraud

According to some of the top institutions in the US, 30% to 40% of all fraud in the retail bank originates at the ATM. Although no single institution is willing to admit to the scale of check fraud, TowerGroup estimates that check fraud originating at the ATM will cost US commercial banks between \$240 million and \$320 million in 2004. Of that amount, 10% to 15% occurs as empty-envelope deposits. By converting to an envelope-less deposit, banks will immediately eliminate this kind of fraud, creating an annual savings of \$24 million to \$48 million industry-wide.



TowerGroup believes that an envelope-free deposit will discourage some fraudulent check activity as well. When potential offenders realize that the ATM is reading the MICR line and a camera is taking a picture of the ATM, some will be discouraged from depositing bogus checks at that machine. While the effect is more psychological than real at the moment, it is not unreasonable to believe that banks will have the infrastructure in the future to actually catch fraudulent check deposits as they are made at the ATM. The ability to capture the check information and prove it against a central database in real time is the next logical step in trying to reduce bad check fraud.

Decreasing Transaction Costs

The cost to process an ATM deposit is illogically high. Given the amount of manual handling necessary to retrieve envelopes and prepare them for processing, the ATM deposit may actually cost the bank *more* money than the same transaction at the teller window. By moving first to separate vaults for cash and checks (eliminating the need for armored car pickup), then to image-based proof for ATM deposits, and eventually truncating the check at the ATM, banks will save about \$1 per deposit transaction. Industry-wide, this translates to approximately \$2 billion in savings every year in the US. For individual top-tier banks, this savings can add up to almost \$100 million annually.

The other benefit when banks move to automation is the opportunity to redeploy staff to other areas of the operation. Branch staff, for example, will no longer be needed to strip cash from envelopes. Thus, their reconciliation process will be shortened every night. This change saves up to an hour's worth of labor per branch per day and makes the staff more effective.

Making a Positive Impact on the Customer

Customer benefit was usually the last thing mentioned by institutions when they cited their reasons for moving to ATM deposit automation. It is hard to quantify what benefit there would be to a customer who is already using the ATM for deposits. Nonetheless, it is generally agreed that the customer will gain a higher level of comfort when the image of the check appears on the back of the receipt. The ability to deposit cash or other items into the ATM without an envelope seems like a positive benefit for the customers, but upon closer inspection, any problems with the bulk acceptors, cash or check, will cause them some frustration.

There is one aspect of the impact to customers that will absolutely matter to banks, however. The automation of the deposit process and, more to the point, the printing of the check image on the receipt, will add such a level of comfort to the transaction that more customers will adopt the ATM as the channel of choice for check deposits. This effect will reduce costs even further as the manual and expensive teller transaction becomes fully automated. The key to this facet of the initiative is education. Much as the best banks have educated the customer in the use of online banking by focusing on the branch as the point of delivery of information and training, so too should the banks focus on the branch as an important part of customer education for check deposits at the ATM. Most banks are in agreement that the branch will be the key in promoting the new ATM function, and many banks have begun to make plans for internal training of branch staff, including concierge staff, who have first-line responsibilities to guide the customer through the new capability.

Most banks did not see the migration of deposits from teller to the ATM as vital for deposit automation to succeed but do believe that the possibility exists for the migration to add to the value proposition of the scheme.

Some institutions are looking forward to more flexible schedules after truncation. The armored car services employed today are under the same time pressure as the branch couriers, who must meet the processing deadlines of the back office. By eliminating the need for physical transportation of checks from the ATM, banks can offer longer "same-day" hours for posting of customer deposits at the machine.



Questions and Impacts

Although many of the drivers seem clear, there are a few questions and unresolved issues for banks that are considering or planning a deposit automation project.

Cost

The first and potentially the largest outstanding issue is cost. Very few of the top US banks have a clear understanding of the costs involved in deploying a "Check 21-enabled" ATM network. Although this issue is not pressing at this point in the cycle, it will become a much more important matter in 2005 and beyond as banks complete pilots and begin to seriously deploy machines in the field. For a bank such as Bank of America, with over 16,000 ATMs in the field, even a seemingly narrow range of costs could mean the difference between a \$100 million project and one nearing \$0.5 billion.

Some of the cost issues will depend on whether banks buy brand new machines or upgrade the existing fleet. Many banks realized that Check 21 would eventually affect their ATM networks and began upgrading their machines in line with the regulatory changes involving strengthened Data Encryption Standard (DES) encryption and requirements of the Americans with Disabilities Act.

How Many to Deploy

The issue of costs raises another question in bankers' eyes: How many of a bank's ATMs *should* be enabled with check imaging and truncation? Cash dispense-only machines currently make up between 10% and 20% of any bank's network. Yet it may not be the wisest decision to deploy new deposit automation machines at the remaining 80% to 90% of the network. It may be wiser (and less expensive), for example, to begin considering specialized deposit machines, much like those prevalent in South America, and educate the customer to perform the new deposits at the smaller number of specially equipped machines. One strategy does seem to be clear: All banks are planning on using bulk cash acceptors to make up for the lack of an envelope. While cash recycling has been proposed to further automate the ATM and further decrease reliance on the armored carrier, most banks feel there are still too many outstanding questions with recycling to make it a part of the first wave of changes.

The Armored Carrier Relationship

The move to check truncation at the ATM spells a big change for the armored carrier services that currently make daily pickups from nonbranch machines. Reducing visits to the machine from daily to weekly will have a sizable impact on these companies. Although it is outside the scope of this Research Note to consider the impact to the armored car industry, TowerGroup expects that armored car services will look to review their contracts with the banks in an attempt to minimize the revenue loss from the change.

The Back-Office Deposit Process

For many banks, Check 21 will impose the dilemma of the tail wagging the dog. There are many aspects of the bank's operation that will be affected by Check 21: the ATMs, the branch, lockbox operations, small business, and items processing, to name a few. The dilemma will come as banks try to coordinate the activities of all of these different areas as they initiate deposit automation projects. Some institutions have already reengineered the deposit process. These banks will have the easiest time migrating the channels to the new paradigm, while other banks will face hard decisions based on the ATM or branch projects.

Timeline for Adoption

At the time of this research, fewer than 20 production bank ATMs in the US have been enabled with check acceptance, imaging, and bulk note acceptance capabilities. These machines have been deployed by three or four of the nation's largest institutions. Since these machines were deployed prior to the October 28, 2004, date on which Check 21 became effective, none of the banks that own these machines truncating checks yet.



TowerGroup believes that many banks are reviewing the costs and benefits of deposit automation in 2004, with many banks taking business cases to management in time for the annual budgeting cycle between September and December. The first half of 2005 will see small-scale pilots of ATM deposit automation from the top 10 banks in the US, followed by more extended deployments in the second half of the year. 2006 will be the first full year of migration for the large banks. The next 10 banks will be approximately six months behind the top 10 in piloting and deployment.

Most of the medium-sized and smaller banks won't begin to deploy until 2007 and 2008. Indications from the third-party providers or ATM services to smaller institutions point to very few banks that have started planning for the move to ATM deposit automation or have shown an interest in doing so.

Exhibit 3 shows the time frame for the movement to Check 21-enabled functionality at the ATM. It is interesting to note that of the 160,000 or so full-function machines (about 80% of the total 200,000 ATMs) owned by banks, less than 40% will be converted by 2010. TowerGroup estimates that the largest banks will probably convert 60% of their total ATM network by 2009, while smaller banks will convert a smaller percentage of their machines. Most large banks believe that full truncation will take effect by the end of 2008.

Exhibit 3 also forecasts the investments in new and upgraded ATM hardware necessary to move to automated deposit processing. These estimates are based on hardware costs only. Fully loaded costs including software and professional services will vary greatly from institution to institution based on the level of sophistication of the particular institution's current offerings at the ATM as well as the resources available at the bank to implement this large-scale change.

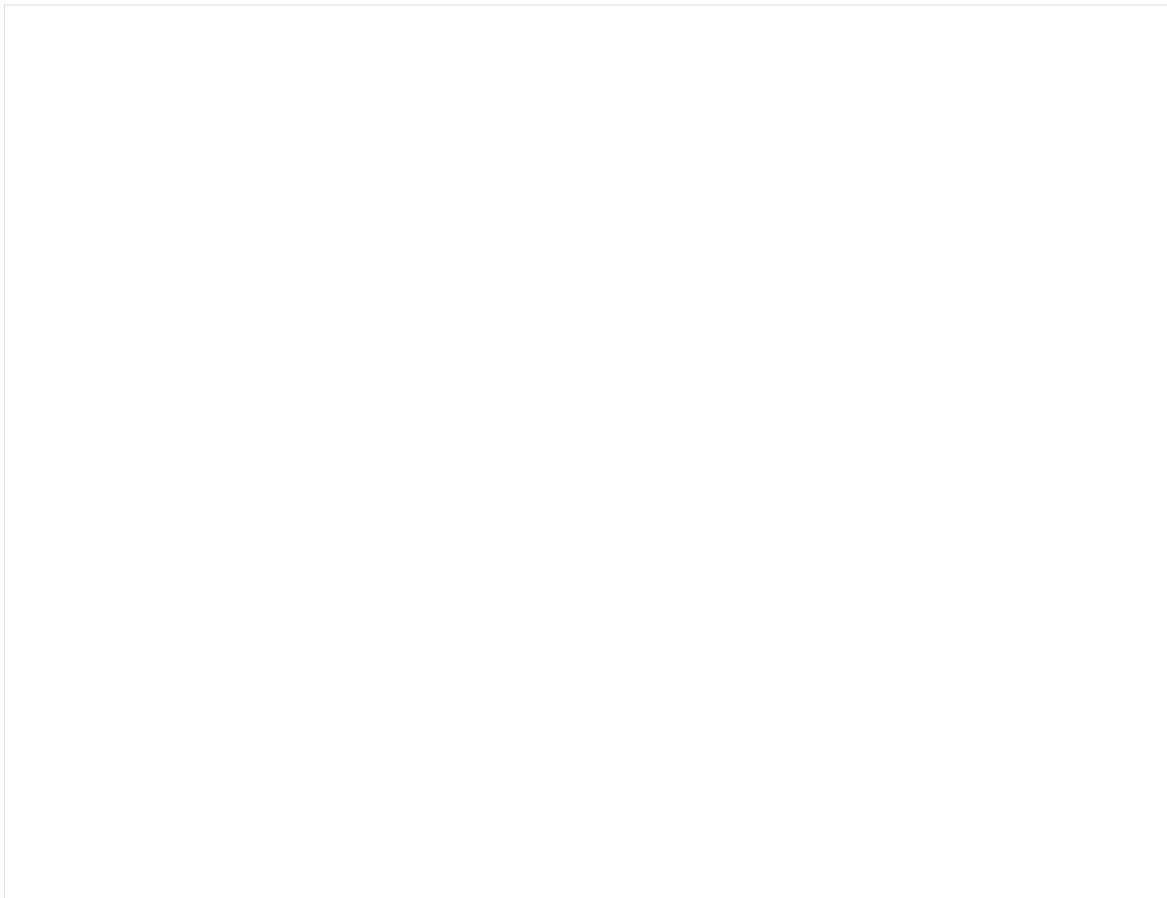


Exhibit 3
Automated ATM Deposit Processing Migration Timeline and New Hardware Investments, US (2005-10)
Source: TowerGroup estimates

Summary

Previous TowerGroup research, ViewPoint Issue 102, "Advanced ATM Technology: Too Fast, Too Furious?" reported the results of a joint TowerGroup and American Bankers Association survey on spending, which showed a higher than usual increase in spending on ATMs by US banks. US banks increased their spending in 2004 by 12% over 2003; prior year increases were closer to 3% to 5%. In view of that report and the findings in this Research Note, it is clear that Check 21 and ATM deposit automation represent a portion of the new spending. In the coming years, deposit automation at the ATM will constitute an even bigger share of new ATM spending, with the largest spending taking place from 2006 to 2009.

While many banks are still dealing with the details of deposit automation at the ATM, the path is clear. 2004 has been a year for banks to experiment with and pilot the first generation of Check 21-enabled machines. 2005 will see the first serious deployments in customer locations, and banks will begin serious deployments in 2006 and beyond. TowerGroup believes not only that customers will readily adopt the new way of interacting with the bank but also that the new deposit paradigm provides banks with the opportunity to move customers from the teller line and onto automation. The already attractive cost savings gained from automating the ATM deposit will be that much sweeter if banks can accomplish this migration.