



The Compelling Case for Teller Capture

And the Integral Role of High Quality Capture

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Executive Summary

Teller Capture is the process of capturing checks and related items on a scanner at the teller window in the branch of a Financial Institution (FI). Any errors encountered during capture are corrected by the teller and the data is then sent electronically to a teller system and other upstream processing systems of the FI.

Since the majority of work performed by a teller in a branch is related to processing checks (according to Celent, 90% of all teller transactions involve checks), teller capture has the potential to make substantial improvements in branch operations and have a direct impact to the bottom line of branch performance. Branch capture has seen explosive growth over the last several years with the majority of FIs now offering some form of branch capture. Teller capture is quickly emerging as the optimal, or end state, model for FIs, even if starting with a back counter implementation. And why wouldn't it? There are tremendous benefits in deploying teller capture including reduced operating costs, smoother workflows, improved customer experience, increased branch sales potential, reduced transportation expense and much more.

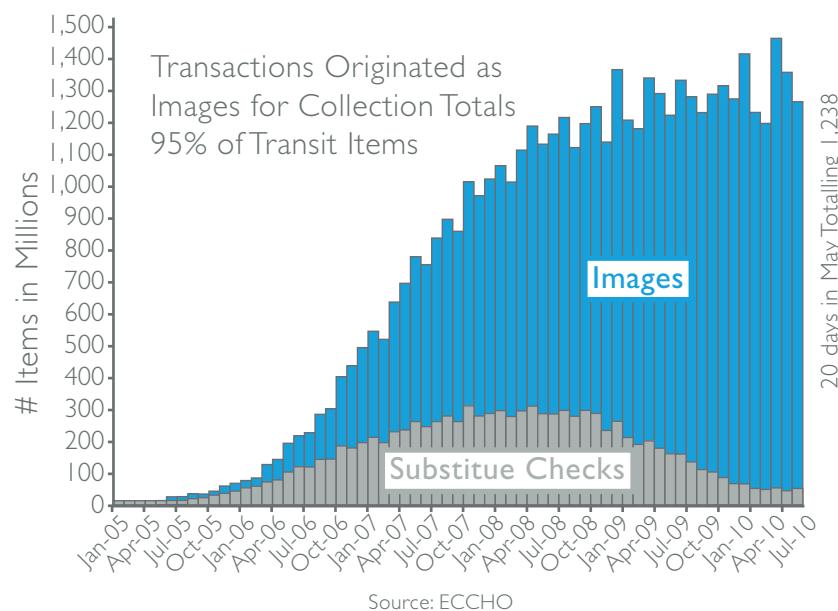
Panini has developed an extensive ROI model to determine the savings calculations presented throughout this paper. Special thanks are extended to Aite Group, a key participant in the development of this model.

According to Gwenn Bézard, Research Director with Aite Group, "When putting together a business case for teller capture, banks should not underestimate the breadth of benefits available including customer retention, customer sales improvements, fraud reduction and more. Limiting the benefits to the obvious areas of operating cost savings and transportation cost savings will result in a very positive ROI, but underestimates the huge impact teller capture can have on the bottom line."

Current State of Teller Capture

Image exchange is the catalyst driving faster adoption of capture at the point of presentment. As more items are cleared using image, fewer are cleared using paper.

According to ECCHO, in May 2010 95% of all clearing transactions were image based (Table I). This escalating adoption of image by the industry continues to drive up the cost of processing the paper for those FIs that are lagging behind. Most banks still have processing centers left over from years of centralized check processing, many of which are now sitting idle or under-utilized. If any one site is still processing paper, it becomes difficult to eliminate the fixed cost required to keep the center up and running. Moreover, as the unit cost of paper processing increases, these costs are increasingly moved to the Retail bank and away from centralized check operations centers, further creating economic pressure to adopt teller capture.



Source: ECCHO

Table I

Image capture at the branch can be accomplished as a back counter branch application or at the teller. Most of the branch image capture deployments so far have been for back counter capture, but teller capture is gaining ground. According to Celent, at the end of 2009, the percentage of back counter capture compared to teller capture was about an 89/11 split. However, Celent believes the ultimate teller capture adoption will range from 25% to 40% of all branch capture deployments. Given the expectation that over 95% of all FIs will eventually adopt some form of branch capture, and 25% or more of these will be teller capture, this will result in a total branch capture deployment of over 320,000 seats.

Benefits of Teller Capture

With the success of Check 21 and the mass movement to image exchange, banks are rapidly building up their image infrastructure to support item truncation at the earliest possible point. Teller capture is perhaps the “last mile” to full image enablement and the realization of its potential benefits.

The initial capital investment to deploy teller capture is typically higher than deploying branch capture at the back counter, but the benefits are more substantial, providing an ROI that clearly favors teller capture. These benefits include:

- Reduced operating costs
- Improved customer experience
- Improved teller experience
- Reduced keystrokes and time to process transactions
- Reduced transportation expenses
- Errors identified and corrected upfront
- Support for additional image clearing benefits
- Improved fraud identification and prevention
- Improved sales and revenue generation from the branch

While some of these benefits are available with back counter capture, the complete list is only possible with a full teller capture implementation.

As noted earlier, Panini has developed an extensive ROI model to determine the savings calculations presented throughout this paper. Special thanks are extended to Aite Group, a key participant in the development of this model.

Operating Cost Reduction

Reduced operating cost is a key benefit of teller capture. Since deposits are processed at the teller and errors corrected while the customer is present, there is a substantial reduction in deposit proof and encoding work. So much so, that many check processing operations centers can be totally eliminated. Technology costs for software licenses, server and sorter maintenance, storage systems and other IT infrastructure components are reduced. Because teller capture utilizes virtual tickets and forms, paper supplies required in a manual teller environment are eliminated including Cash-in and Cash-out tickets, deposit tickets, G/L tickets and more. The aggregate savings are substantial, and can dramatically impact the bottom line profitability of the bank. **For a bank supporting 100 branches and 3 item processing centers the potential savings could exceed \$1,500,000 annually.** This includes reduction of day 1 FTEs, equipment cost savings, systems cost savings, occupancy cost savings and paper forms cost savings.

Customer Service Improvement

The customer experience at the branch is improved with teller capture. Automation enables the teller to focus on the customer and not the technology. Tellers regain a valuable opportunity for "heads up, customer facing" time for service and relationship development since they are not focused on processing transactions (heads down). Errors are identified and corrected while the customer is present. With increased efficiencies, branches are able to extend their hours, making it more convenient for customers to do business at the branch based on the customers' schedule and availability. Customer service impacts can be quantified in customer retention rates. **If the customer attrition rates can be reduced by just 1% with teller capture a sample bank with 100 branches could potentially save over \$1,300,000 per year.** This includes a reduction in the attrition rate for consumer customers and small business customers. It also assumes a reduction in the very high costs to acquire a new customer, which could exceed \$200 per customer when considering acquisition and advertising costs.

Staff Transformation

Tellers also benefit from teller capture. The teller's role is transformed from transaction clerk to relationship manager, which is often a more fulfilling role. The ease and efficiency of modern teller capture systems results in higher job satisfaction for the tellers, and ultimately less job turn-over. This creates substantial savings for the bank (recruitment, training, etc.) while creating a more experienced and capable workforce. **Teller capture turnover rates are known to be very high and can exceed 20%. By reducing this rate by just 3%, with teller capture a typical bank of 100 branches could potentially save as much as \$75,000 per year or more, not counting improved staff morale and increased productivity.**

Transactional Efficiency

Teller capture actually reduces keystrokes and the time it takes to process a transaction for the teller. Data that must be keyed or handwritten in a paper environment is automated with teller capture due to the tight integration of the teller capture system with the teller transaction system and sophisticated image analytic technologies. **According to a leading teller capture software provider, front counter capture can reduce keystrokes by as much as 80%.** With these increased efficiencies the positive reduction in operations staff does not need to be offset by an increase in branch staff, further supporting the already positive teller capture business case.

Reduced Transportation Costs

Reduced transportation expenses are another important benefit of teller capture. Courier runs from the branch to operations centers are significantly reduced as the movement of images replaces the movement of paper. As banks continue to close item processing centers due to the growth of image exchange, couriers must travel farther distances to the remaining centers and, in many cases, routes are eliminated altogether. This all adds up to increasing transportation costs. By eliminating and reducing courier runs with teller capture, transportation expense reduction emerges as a critical benefit to teller capture. **In our sample bank of 100 branches, reducing the courier expenses by a conservative 50% can result in a savings of over \$1,500,000 annually.**

Elimination of Downstream Error Corrections

Errors are reduced with teller capture, along with the associated downstream costs for correction and potential customer service issues. Since deposits are processed by the teller while the customer is present, errors in transaction balancing, discrepancies between deposit slips and adding machine tapes, or other mistakes are caught and corrected in real time. Any erroneous conditions can be quickly identified and addressed, regardless of the cause. This will result in a reduction in day 2 processing staff in the item processing center, as well as a reduction in equipment, systems and occupancy costs to support this staff. For a bank supporting 100 branches this could exceed \$250,000 annually.

Image Exchange Benefits

Banks using teller capture can more readily avail themselves of image exchange benefits. Float is reduced as images can be captured and prepared for image exchange on an intraday basis. Intraday clearing also reduces check clearing expenses. Some banks have noted that their Fed bill for clearing services was reduced by over 1/3. With immediate access to the images, check processing rules can be more quickly applied, such as funds availability rules, posting rules, returns processing, holds, stop payments and much more. For a bank with 100 branches that processes \$2,000,000 in deposits per branch per day, by reducing float by 1 day for 15% of the deposit volume, over \$400,000 could be saved annually. A reduction in Fed Image Exchange fees could save another \$35,000 annually.

Fraud Reduction

Fraud identification and prevention is facilitated with teller capture. Teller capture provides a complete audit trail of all transactions supporting rapid identification of suspect transactions, which can be validated to identify duplicates in real time. Online fraud systems can be accessed and policies can be applied much closer to the time of the transaction, even while it is occurring, enabling the chance to significantly reduce fraud. Using teller capture to enable real time access to the images from the fraud systems, the 100 branch bank could save \$50,000 per year in fraud losses with a conservative 5% reduction in fraud.

Creation of Sales & Service Opportunities

Finally, the opportunity to improve branch revenue and service may be the most important benefit of all. Teller capture enables the teller to be more fully engaged with the customer. Tellers are now available to cross-sell products and services, engage in customer relationship development, and possibly unlock the key to a successful CRM implementation at the branch. As stated earlier, the teller can now be transformed into a true relationship manager. If the product offer rate is increased by a mere 5% due to teller capture, our sample bank of 100 branches could increase annual revenue by over \$400,000.

Benefits Summary

When all of these benefits are taken into consideration, a bank with 100 branches could potentially save close to \$6,000,000 per year. For most banks that have implemented teller capture the ROI has been well under 2 years, often considering only the operating cost savings and transportation cost savings.

The Integral Role of High Quality Capture

To realize and optimize the benefits of teller capture, high quality scanning (capture) technology must be employed to convert the legacy paper processes to modern image automation.

Risks Incurred with Poor Scanner Performance

It's important to understand the risks associated with poor quality capture, which includes inaccurate information and erosion of economic benefits.

Inaccurate Information Capture

With the myriad of teller capture benefits comes some potential risk. One of the key risks to be mitigated is the capture of inaccurate information related to the check transaction. In this new world of image, the paper is quickly truncated, and consequently, so is the last, best source of the original data. We can no longer easily go back to the paper to resolve discrepancies or validate transaction information. This makes it imperative that the combination of the document image and associated data is extremely accurate. The two areas that facilitate the ability to capture a true representation of the original transaction are image quality and accurate codeline capture.

Poor image quality leads to increased back office work and exacerbates the burden on the research and adjustments department. In addition, one of the first steps in addressing a poor quality image is to have the teller rescan the check, which causes more work for the teller. One of the best ways to address poor image quality is to ensure the use of a high quality scanner to produce superior quality images, which in turn provides better CAR/LAR and OCR read rates, easier keying operations for the teller due to clearer images that are easier to read, and better customer products such as image statements.

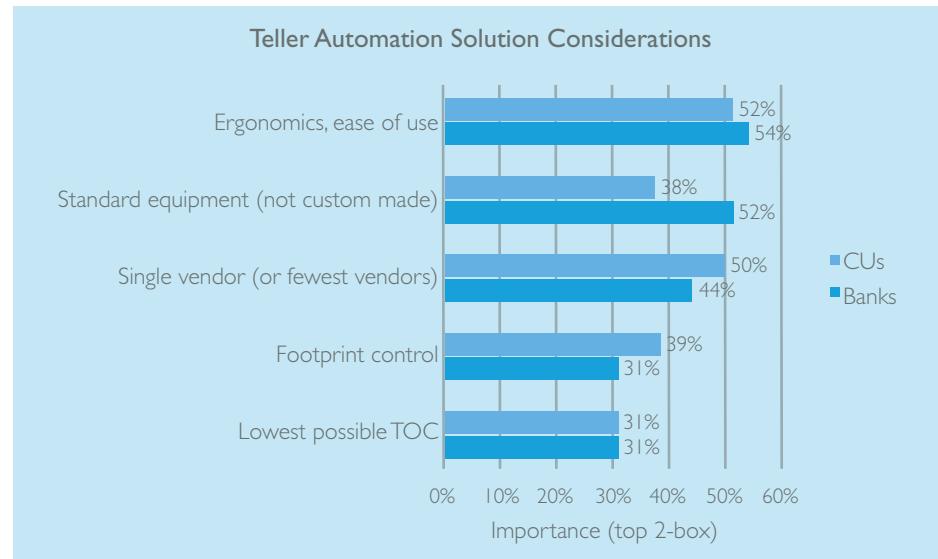
Inaccurate codeline capture can have a costly ripple effect that impacts bank operations and customer satisfaction and retention. Small exceptions and inaccuracies can cause big problems downstream. Inaccurate data resulting in exception processing can cause missed deadlines resulting in higher fees and in some cases delayed settlement of funds. Specific issues can include posting payments and deposits to the wrong accounts, incorrect check returns, higher exception processing costs as well as an increased risk of fraud. Accurate codeline capture minimizes bank processing costs while enhancing overall customer satisfaction.

Direct Erosion of Teller Capture Benefits

A second category of key risks to be mitigated is that of a poorly performing scanner. A low-quality and poorly performing scanner can rob the teller capture business case of expected benefits by problems created or magnified by the scanner itself. Excessive scanner downtime, double fed documents, jams, difficult and excessive maintenance procedures and inadequate scanner configuration can chip away at the positive business case for teller capture. Although all of these factors impact the teller capture business case, the one of greatest concern to

banks is poor ergonomics. According to a recent Celent bank survey, user ergonomics is of paramount importance for teller capture. Without a properly designed system that considers teller workflow and work space, the teller capture operation becomes awkward and clumsy.

Source: Celent bank survey



Critical check scanner attributes

In order to capitalize on the benefits of teller capture and reduce potential risks, all scanners should support a fundamental set of features or attributes. These attributes ensure that data is captured accurately and scanner related issues are minimized.

Scalability

There is great variety between teller environments, which may vary from branch-to-branch, bank-to-bank, across customer traffic patterns, by check volumes processed, mix of personal checks and business checks and many other areas. Scanners must be scalable in key features such as processing speeds, feeding capacities, printing capabilities and costs. It is also important to be able to quickly and easily change or upgrade a configuration as teller environments evolve and change. However, it is equally important that scanners maintain consistent ergonomics and architecture so tellers do not have to be retrained when scanners are upgraded. These changes and upgrades must also be supported with minimal downtime and disruption to the production teller environment.

Feeding Capability

The scanner feeder is where accurate capture starts. The feeder must be automated and easily support a feeding range from a few documents to as many as 100 or more, although the vast majority of teller transactions will be for 10 items or less. The feeder should automatically sense when documents are loaded and not require additional interactions to initiate the feeding process, such as pushing a start button. Since most people are right-handed, the teller should be able to key and interact with the teller system with their right hand while easily



inserting checks into the scanner feeder with their left hand, without having to reach across the teller system, other teller equipment or the check scanner itself. Consequently, the teller should be able to easily insert documents into the feeder with one hand. All of this allows the teller to focus on the customer, not the device, and makes transaction processing very smooth and efficient.

Track Design

Efficient track design minimizes jams, double feeds and other document handling issues, while making it very easy for the teller to address any issues that might occur with document flow. Processing should be smooth and quiet with no requirement for manual or mechanical adjustments. Optimal tension should be maintained on all rollers throughout the document track to automatically reduce the risk of double-feeds and jams, while at the same time automatically adjusting for documents of different thicknesses. If foreign objects, such as staples or paper clips, are inadvertently inserted into the scanner, the track design should allow easy removal. This is optimized by providing access to the entire document track for object and jam removal, ease of maintenance, and cleaning.

Double Feed Detection

In the paper processing world, double document feeding can occur with all scanning devices that support automated batch feeding. The ideal scanner design should accommodate this by minimizing the occurrence of double feeds while accurately detecting when they do occur. Minimizing the occurrence is accomplished by good track and roller design, which was discussed previously. However, detecting double feeds is accomplished with different technology, typically achieved on check scanners by utilizing optical technology. Optical technology uses a beam of light that is directed through the scanned paper document to ascertain the document thickness by the amount of light that passes through. The assumption is that double documents will allow less light through and can be flagged and processed as a double fed document. This technology is effective for the majority of standard document types, but many of the documents processed are not standard. For example, documents that happen to be extra thick or documents with unusual color schemes can fool the optical technology and make it appear that there are two documents when in fact it is still only a single document. To overcome this deficiency, a second type of technology is used called ultrasonic double feed detection. Ultrasonic technology uses sound waves to vibrate the documents and detect if there is any gap between documents. This technology has proven more effective in detecting true double feeds, and in minimizing false double feeds. Effective use of double feed detection can substantially minimize operator intervention and further facilitate smooth teller capture operations.

Processing Speed

There are two aspects to scanner processing speed that are important in document processing, throughput and transaction speed. Throughput measures how many documents can be processed at a given point in time. This is usually measured in documents per minute or dpm. This is what most people think about when considering scanner speed. However, it's the second aspect of processing that is more important for teller capture, transaction speed. Transaction speed is the time it takes to complete a single transaction. Most teller transactions are less than 10 documents. It is very rare to have transactions at the teller that are made up of 10, 20, 30 or more documents. This has led most people to assume that since fewer

documents need to be processed, lower speed scanners can be used. However, transaction speed is actually a very important factor. Some banks that had originally deployed slower dpm scanners under the throughput assumption have since upgraded to higher DPM units, to maximize transaction speed and improve customer satisfaction. The speed of processing a single transaction is more important for teller capture than the ability to process a large number of transactions in a short window of time.

MICR Read Capability

The key to effective teller capture is extremely accurate capture of the codeline data. By far, the most important factor in accurately capturing this data is the capability to magnetically read the Magnetic Ink Character Recognition (MICR) line. High quality MICR reading technology is based on the analysis of millions of MICR lines to finely tune algorithms that can accurately detect the value of a magnetic character, even when the check has been processed many times, or is torn, skewed or has handwriting from the signature obscuring the MICR line. Over the last couple of years, scanner vendors have begun to implement additional technology to even further improve MICR line reading accuracy. The use of Optical Character Recognition (OCR) has been implemented to attempt to read characters in the rare event they cannot be read magnetically. This is sometimes referred to as OCR assist and has resulted in MICR line reading accuracy well in excess of 99% on the best performing check scanners. Because there is processing overhead in using OCR technology, OCR assist should only be invoked when a character cannot be read magnetically. When OCR technology is used to read the entire MICR line instead of magnetic technology, the capture accuracy is much lower, resulting in many more rejected characters and misread characters, which can be very costly for the bank and the customer. If OCR technology is used to supplement reading of the entire MICR line magnetically, very accurate results may be obtained. When it comes to successful teller capture, accurate and automated data capture is imperative.

Printing Capability

It might seem counter-intuitive in a world where paper is being truncated at the earliest possible point in time that there would still be a need for printing on the very paper that is soon to be destroyed. But, there are several good reasons for this application, and printing technology on the scanner is still a very important feature to have. There are four applications for printing on the check: endorsement printing, validation printing, receipt printing and franking.

Endorsements are a Regulation CC requirement for processing checks. Payee endorsements, Bank of First Deposit (BOFD) endorsements or transit item endorsements allow the check clearing system to track who has handled a check during its processing life. For the purposes of teller capture, payee endorsement is not a required function of the scanner. The check will have already been endorsed by the depositor before it is processed at the teller. However, BOFD endorsement is important for teller capture. As the bank of first deposit, the teller scanner can endorse the physical check to comply with Reg CC requirements. However, new technology is emerging called virtual endorsement that allows the image to be endorsed electronically without any requirement to physically endorse the paper. This is important since the paper will be truncated anyway. Increasingly, we will see endorsements at the teller moving to virtual endorsements, saving on printing supplies, maintenance and additional overhead.

The second type of printing is known as validation printing. Validation printing at the teller is generally a requirement of most banks today. It is the process of printing from 1 to 6 lines on the back of the check to indicate that the check has been processed and who processed it. Information such as the branch location, teller id, date and time, sequence number and other information is printed on the check. This allows the check to be tracked before it is finally destroyed. Since validation printing is about tracking the actual paper, it will be eliminated slower than endorsement printing and is not likely to be replaced by virtual endorsement technology. If the check scanner does not support validation printing, a separate check validator must be used, introducing additional costs and footprint requirements at the teller.

Receipt printing is an often overlooked capability of some check scanners. Tellers almost always print transaction receipts for their customers at the conclusion of a teller transaction. This has historically taken two forms: roll-tape receipts or cut-sheet receipts. Roll-tape receipts use roll-tape receipt printers similar to that used by retailers at the point-of-sale and can include more information on the receipt than cut-sheet receipts. Cut-sheet receipts are based on blank check-sized paper forms that are fed through a validator or a check scanner to print the transaction receipt on the form itself. Many teller check scanners can also function as cut-sheet receipt printers. Check scanners performing this function must support a minimum of four lines of printing and also support graphic printing to include bank logos or other marketing data.

Finally, the last form of printing by the check scanner is franking. In its most literal sense, franking is marking the front of the check in a visible way to indicate that the check has already been processed electronically. Words such as "Electronically Deposited" are often used. The purpose of franking is to prevent duplicate deposit of items, either accidentally or fraudulently. The technology used for this is usually an ink roller stamp as opposed to an inkjet cartridge. Franking is ideal for small business Remote Deposit Capture, but is usually not necessary for teller capture, as the validation printing can also act as a deterrent against duplicate deposits.

Image Capture Capability

Since the paper is truncated at the earliest point of processing, capturing a high quality image is mandatory. As required by US Check 21 law, and by check truncation laws in many countries, the image must present the most accurate representation of the original paper. However, this must be balanced with the cost of capturing, storing and processing that image. The perfect image may have superior quality, but is so large in size that it is impractical and incredibly expensive to store the image and transmit it over a network. Having the flexibility to define the qualities of the image to meet the needs of the application is a critical attribute of quality check scanners. Most check scanners should support duplex imaging at a minimum, where the front and back image of the check is captured and stored. Some scanners offer even more flexibility and allow multiple image segments to be stored, e.g. 2 front images and 2 rear images. This is useful if images will be used for multiple purposes such as image exchange, image archiving, image statement products, image fraud products, etc. A lower resolution black and white image may be captured for image exchange, while a higher resolution grayscale or color image may be captured to support certain fraud products.

Other imperatives of image capture include options for image resolution and dynamic thresholding. Image resolution is measured in dpi, or dots per inch, and higher resolution equates to clearer images and better automated recognition results, e.g. CAR/LAR. Better recognition results mean fewer items that have to be manually processed. Most scanners today will scan at 300 dpi, which results in very good images and automated recognition



results. Dynamic thresholding is logic implemented by the scanner that increases the accuracy of low-contrast documents by preserving light foreground details while eliminating dark background details in an intelligent way. This also increases the accuracy of automated image recognition. By using check scanners that support optimized and flexible image capture capabilities, teller capture implementations will enjoy the benefits of fewer IQA (Image Quality Analysis) rejects, fewer keying and exception processing requirements and better customer products and overall experience.

Flexible Exit Pocket Technology

The last point where the paper is processed at the scanner is the exit pocket. Sound exit pocket technology is important to ensure the integrity of the deposit by maintaining the items in the exit pocket in the same order in which they were fed into the scanner. Exit pockets must also have a jam-free design with capacity to hold up to 100 documents to minimize teller intervention. By enhancing unattended processing at the teller, the exit pocket design further supports the business case for teller capture, by allowing the teller to be more efficient and more customer focused. Although typically not needed in most teller capture environments, some check scanners support two exit pocket models. Two pocket models can be used to physically sort exception items into a different pocket for easier processing. For example, foreign items could be separated from domestic items, reject items could be separated from good items, or on-us items can be separated from transit items.

Overall Product Quality

All the features in the world won't matter if product quality is deficient. To ensure the best possible reliability, check scanners for teller capture should be designed, manufactured and delivered by a company with an impeccable reputation for quality. They should be ISO-9001 quality certified and offer very high Mean-Time-Between-Failure (MTBF) rates. The products themselves should use the best materials available such as coated aluminum boards that are light and sturdy and protect the board from foreign objects or spills and rectified rubber rollers that don't easily slip off or lose adherence. High volume manufacturing experience using standardized processes with rigorous testing is a requirement. Scanner downtime at the teller can quickly erode the business case, making it imperative that only the best quality scanners are used.

Summary

Due to the success of image exchange and the overwhelmingly positive business case, teller capture is experiencing rapid adoption. The complete list of benefits, hard dollar as well as soft dollar, should be considered when evaluating a teller capture business case.

The potential for teller capture to directly impact the branch bottom-line is clear. However, without high quality capture these benefits cannot be fully realized. The accuracy of data capture depends on very high MICR and CAR/LAR read rates, without which, the true benefits of teller capture remain hidden. High quality capture consistently provides extremely accurate data while minimizing teller intervention and application downtime. Teller capture offers tremendous benefits for Financial Institutions and their customers, but this can only be realized if the best technology is implemented, and it starts with high quality capture.