Tap. Snap. Deposit.

Remote Deposit Capture Whitepaper

Southeast CUNA Management School
Third-Year Project

Barbara Burkett
Georgia's Own Credit Union, Atlanta, GA
baburkett@georgiasown.org

Dan Elston
BayPort Credit Union, Newport News, VA
delston@bayportcu.org

Shelly Day
Health Center Credit Union, Evans, GA
sday@gru.edu

Sean Leavell
Georgia's Own Credit Union, Atlanta, GA
sdleavell@georgiasown.org

Table of Contents

INTRODUCTION

It has been nine years since the introduction of the Apple iPhone in 2007. In 2011, 35% of Americans owned a smartphone. The percentage of Americans owning a smartphone ballooned to 64% in 2015. The creation of the smartphone has significantly changed our lives in almost every aspect, affecting the way we interact with people, our environment and education, how we do business, and managing our health.

As our dependence on mobile devices has increased, consumers' expectations for services delivered via the convenience of the mobile channel has also increased. Banking is just one area in which consumers are demanding new ways of interacting with their financial institution through mobile channels. As the mobile channel grows, we can expect to see a reduction in the number of traditional transactions, such as payments, account transfers, and check deposits, via a branch or call center.

In March 2015, the Board of Governors of the Federal Reserve System published the *Consumers and Mobile Financial Services 2015* report. This report supports that the mobile phone is quickly becoming the preferred channel for consumers managing their financial business.

Below are key statistics of smartphone usage from the *Consumers and Mobile Financial Services 2015* report:

Mobile and Smartphone Usage

- 87% of the American adult population has a mobile phone.
- 71% of mobile phones are smartphones, an increase of 10% over 2013.
- 91% of persons ages 18 to 44 use a mobile phone. 87% for ages 45 to 59 and finally 80% for those over 60 years old.

Mobile Banking Usage

- 39% of all mobile phone users with a bank account have used mobile banking in the prior 12 months of the survey completed in December 2014, an increase from 29% in 2012.
- 52% of smartphone owners with a bank account have used mobile banking in the 12 months prior to the survey, up 1% from a year earlier.

Potential Mobile Banking Usage

- Of survey respondents in 2013 that would "definitely" or "probably" use mobile banking, 42% with smartphones used mobile banking in 2014.
- Consumers with mobile phones and bank accounts not using mobile banking cited several reasons to not adopt mobile banking:
    1. 86% believed that their banking needs were being met by traditional channels.
    2. 73% did not see a reason to use mobile banking.
    3. 62% were concerned about security.
    4. 39% stated the small size of the screen.

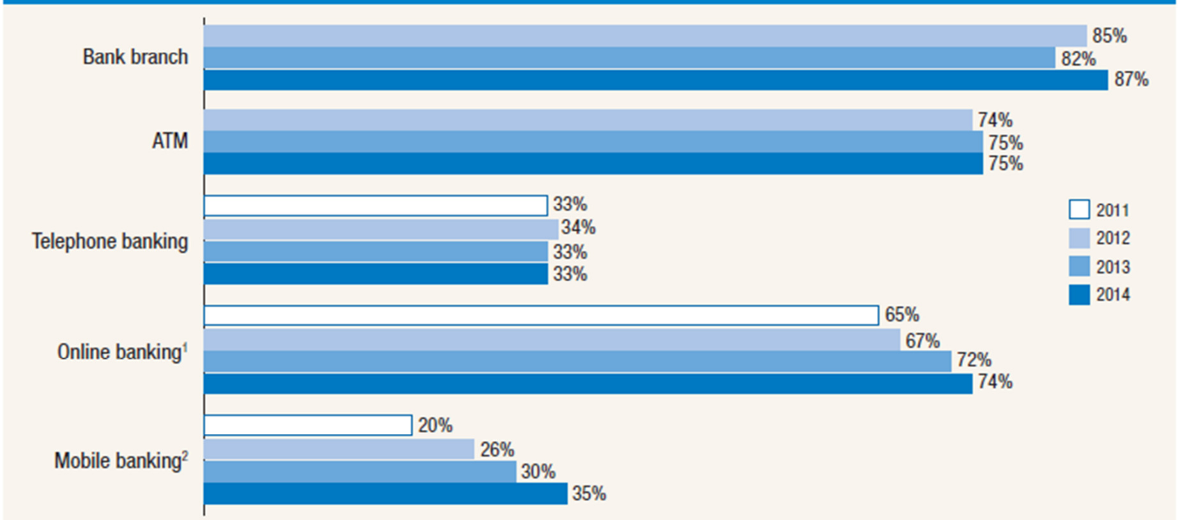
Mobile Payments Usage

- 22% of mobile phone users made a mobile payment within the last 12 months, up from 12% in 2011.
- 28% of smartphone users made a mobile payment within the last 12 months, up from 23% in 2011.
- 39% of all mobile payments users with smartphones made a Point of Sale purchase in the last 12 months.

Channel Usage

Given the increase in the use of mobile banking, one would expect to see an equal decrease in the use of other more traditional channels. However, according to the *Consumers and Mobile Financial Services 2015* report, mobile banking increased from 20% usage in 2011 to 35% usage in 2014, accompanied by no change or a slight increase in other channel usage.

Figure 2. Usage of different means of accessing banking services, 2011–14



Note: Percentages are of all respondents with a checking, savings, or money market account for each banking channel, regardless of mobile phone ownership or access to the Internet. Questions about usage of bank branches and ATMs were not included on the 2011 survey.

1. For online banking, respondents who reported that they did not have regular access to the Internet other than that provided by GfK were not asked the online banking question in the 2011–2013 surveys. In the 2014 survey, all respondents with bank accounts were asked the question about online banking, which raised the measure for 2014 to 74 percent—2 percentage points higher than if these respondents had been excluded as in prior years.

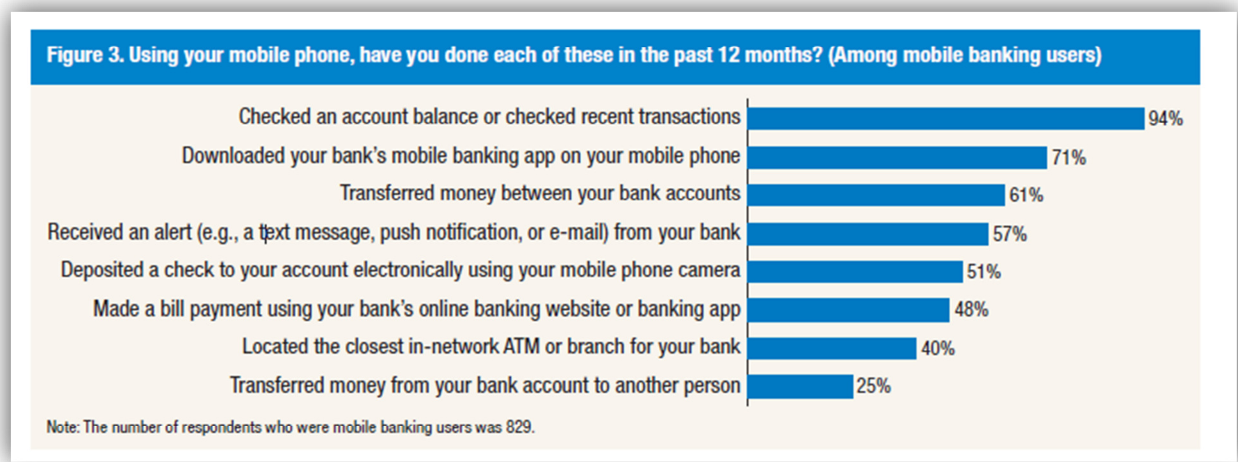
2. For mobile banking, the percentages here may differ from the incidence rates elsewhere in this report because the latter are computed for those with mobile phones and bank accounts.

Source: Consumers and Mobile Financial Services 2015

The chart above shows that while mobile banking users are utilizing new techonoligies, they do not abandon the traditional channels, but rather maintain those touch points at the branch and ATM.

Common Mobile Banking Options

- 94% of mobile banking users checked an account balance or recent transaction
- 61% transferred money between accounts
- 57% receive an alert either from a text message, email, or push notification
- 51% use remote deposit capture
- 48% performed an online bill payment



Source: Consumers and Mobile Financial Services 2015

As seen above, remote deposit capture (RDC) makes up 51% of the activity for mobile banking users. As more financial institutions adopt this technology, we would expect to see usage increase. According to the Federal Reserve, RDC has been called the "most important development the (U.S.) banking industry has seen in years" (Remote Deposit Capture Overview). This service taps into the power of the mobile device, allowing consumers to bank wherever and whenever they want by simply snapping a picture of a check.

RDC is a service that allows a user to scan checks remotely and transmit the scanned images and/or ACH-data to a bank for posting and clearing (Remote Deposit Capture Overview). This represents the first iteration of RDC which a consumer using their home or office computer could scan the image while in an institution's online banking service. For a mobile device, the process is basically the same, however, instead of scanning the check, the consumer simply snaps a picture of the check while using a financial institution's mobile banking application and the check is then transmitted to a financial institution for posting and clearing.

This whitepaper will generally refer to all methods of remote deposit capture whether via a desktop scanner, smartphone or tablet as RDC. In some cases, we may identify mobile remote deposit capture (mRDC) to identify its specific use.

Why should a credit union consider RDC?

As mobile phone use continues to grow, members are demanding more convenient ways to do their banking, and are quick to change institutions for that added convenience. Also, RDC has been proven to be a catalyst for generating new revenue sources, new customers, and deposit growth (Key). RDC can attract new members that may have chosen to bank elsewhere. In addition, it has the potential to increase wallet share with existing clients. For credit unions in particular, elimination of geographic boundaries is quite appealing. With RDC, members can make deposits outside of the reach of the normal branch network.

As with any new service, there are risks involved. RDC can be implemented in two different fashions. One, a standalone application, or two, integrated within an existing mobile banking application. Integration within mobile banking is the optimal choice in mitigating risks. This provides a higher level of security being situated behind the financial institution's firewall as well as a seamless member experience. Connecting RDC within the online banking structure reduces the need for human interaction, as well as post-transaction processing. As an example, Bank of America estimated it costs 13.6 times less to process a mobile deposit versus in-branch. Another risk with mobile RDC is duplicate presentment. This happens when a member either intentionally or non-intentionally deposits the check via RDC, then presents the check again through another channel. This is compounded by the possibility of an item being submitted to multiple institutions without detection. These risks will be discussed later in this paper.

RDC, as part of an overall mobile strategy, offers a significant opportunity for credit unions to remain competitive and relevant in today's technology and convenience-driven marketplace. We understand that many credit unions have been considering RDC and others are fairly new to the process. This whitepaper will outline some of the key risks and benefits of implementing RDC within a credit union, and provide real world experience from two credit unions currently providing RDC to their members. In addition, this whitepaper will provide two separate surveys related to mRDC and pair them together and discuss the results.

RISKS

When considering a RDC program, several risks must be considered to ensure a successful implementation, including legal, compliance, and fraud. These risks are discussed below.

Legal

Patent infringement is a credit union's primary legal concern when considering a RDC program. In recent years, patent holding companies have targeted larger banks and credit unions with lawsuits alleging patent infringement related to technologies used to process check images using branch capture and RDC (McGarvey).

Larger financial institutions are typically the primary targets for such litigation. They typically have the resources to develop in-house processes that will utilize patented technology that requires licensing. Larger banks and credit unions also represent bigger pay days in lawsuit settlements.

It is only natural that as settlements are reached with larger institutions, the patent holding companies will weigh the financial benefits of moving down the ladder to smaller banks and credit unions. The financial rewards from these lawsuits tend to be smaller due to the financial institution's limited financial resources. However, this litigation can represent quick pay days. Due to smaller resources, many of these financial institutions will settle by paying a licensing fee with little resistance (McGarvey).

Commercial comprehensive general liability insurance policies do not typically cover patent infringement claims. Patent litigation coverage is available but is thought to be cost prohibitive (RDC Patent).

How do credit unions protect themselves from this risk? Many pass the risk onto a vendor. Very few credit unions have the resources to develop their own technology. Most will contract with a vendor to provide a solution. Having a contract with a vendor that includes an indemnity provision in favor of the credit union is the best way for a credit union to protect itself (McGarvey).

It is also imperative to obtain representation from the vendor stating that it is not infringing on a patented technology. It may be a sign of concern, if a vendor does not want to provide that representation.

Compliance

There are a number of compliance issues to consider when offering a RDC service. Credit unions should consider compliance risks associated with the Check Clearing for the 21st Century Act (Check 21 Act), Regulation CC, Regulation DD, and BSA, to name a few.

The Check 21 Act makes it possible for credit unions to offer RDC to its members. This act also establishes warranty and indemnification provisions for substitute checks. Particularly, a warranty for duplicate presentment is established. A credit union presenting a substitute check is warranting to all parties involved in the process that the substitute check will only be paid once. A proposed amendment to Regulation CC would establish a new indemnity that increases the risk of loss due to duplicate presentment to financial institutions using RDC (CUNA).

Regulation CC funds availability requirements do not currently apply to deposits made by RDC since they do not fall into the definition of a Regulation CC deposit. The regulation considers funds deposited when completed at a staffed teller facility, ATM, contractual branch, by mail, or in a night depository. The Federal Reserve Board is proposing an amendment to Regulation CC that will protect a depository institution that receives an original check deposit that is returned unpaid because it was deposited and paid via RDC. This significantly increases the risk of RDC and amplifies the need for proper risk mitigation. Credit unions will need to review their risk mitigation for RDC and ensure it includes member due diligence for RDC users, member eligibility requirements, and limits on dollar amounts and frequency of deposits.

The establishment of check deposit dollar and frequency limits should be clearly defined in an initial membership agreement for Regulation DD compliance. Notices should be mailed at least 30 days in advance before adding RDC to existing accounts. This should also include any fees associated with making mobile deposits. Regulation DD also requires these fees to be displayed on the member’s periodic statement.

Since the funds availability requirements of Regulation CC do not apply to items deposited through RDC, it will be important to establish clearly defined funds availability guidelines in a RDC member agreement. A strong member agreement will help mitigate both legal and compliance risks. The establishment of appropriate funds availability guidelines will also help mitigate risks that include duplicate presentment and money laundering.

Money laundering mitigation is a requirement of the Bank Secrecy Act (BSA). In an effort to comply with BSA requirements, credit unions should establish specific coding for RDC transactions that will help identify mobile deposits and detect suspicious activity. Proper internal controls will help detect layering by identifying suspicious RDC activity by monitoring frequency of deposits and how much money is moved out of accounts after a RDC deposit.

Money laundering can also be effectively deterred by establishing limits on the types of items that can be deposited by RDC. Prohibiting the deposit of money orders, third party checks, and travelers cheques, and allowing items drawn on U.S. financial institutions only can make money laundering less appealing.

Fraud

Check fraud associated with RDC includes typical fraud tactics such as altered checks, forged endorsements, and counterfeit checks. The concern is that mitigation procedures that are in place when checks are deposited in person will be circumvented when completed with RDC.

New fraud mitigation strategies will have to be implemented to prevent check fraud through RDC channels. The use of member due diligence on new members or service users, and appropriate qualification guidelines should be the first risk mitigation step. Another mitigation tactic is to employ a strict endorsement that requires the member's account number, credit union name, and the member's signature. Other mitigation strategies would include reviewing all RDC deposits during an initial time period of new service and establishing dollar amount and frequency limits for RDC deposits.

Fraud related to duplicate presentment is a major risk with RDC. A member now has the ability to deposit the same check at multiple financial institutions. This can occur in several possible scenarios. A member could deposit an item via RDC and then mistakenly deposit the original item at a physical location. Members could also intentionally deposit the item via RDC at multiple financial institutions and deposit the original at a physical location.

Below are three RDC duplicate presentment scenarios identified by CUNA Mutual Group (Remote Deposit Capture and Duplicate Presentments):

Scenario 1

A credit union member transmits an electronic image of a check for deposit to Credit Union A via RDC. The member then transmits an electronic image of the same check for deposit to Bank B via RDC. The check is drawn on Paying Bank C. Both Credit Union A and Bank B provide the substitute warranties to Paying Bank C. Paying Bank C can pursue a substitute check warranty claim against either Credit Union A or Bank B.

Scenario 2

A credit union member transmits an electronic image of a check for deposit to Credit Union A via RDC. The member then deposits the original check to Bank B, which truncates the original check and transmits the image of the check for collection. The check is drawn on Paying Bank C. Similar to Scenario 1, Paying Bank C can pursue a substitute check warranty claim against either Credit Union A or Bank B.

Scenario 3

Assume the same facts as in Scenario 2, except Bank B presents the original check for payment to Paying Bank C. In this case, Paying Bank C can only pursue a substitute check warranty claim against Credit Union A. Bank B did not provide the substitute check warranties since it presented the original check for payment to Paying Bank C.

Proposed changes to legislation could affect the current indemnification process. For example, Credit Union A could receive a deposit by RDC and make the funds available to the member while having the item paid by Paying Bank A. Credit Union B could receive the same item for deposit through RDC and make funds available for withdrawal while the check is returned by

Paying Bank A because the item has already been presented. In this scenario, if funds are no longer available in the member's account at Credit Union B, it has no recourse against Credit Union A. However, a proposed regulatory change could indemnify Credit Union B, if it received the original item in this scenario. The proposed regulation change would give Credit Union B recourse against Credit Union A if it received the original check.

Other fraud related to mobile RDC includes the risk of a lost or stolen mobile device. If a mobile device and/or the mobile RDC platform is not password protected, a lost or stolen device could result in fraud. Also, unencrypted sensitive data that resides on a mobile device or transmitted through unsecure channels could be compromised.

This is why it is important to employ solutions that include technology to secure sensitive data. The technology should include encryption for data storage and transmission as well as some other key RDC functionality such as duplicate item detection, image quality analysis, courtesy amount recognition, and legal amount recognition.

CASE STUDY – BAYPORT CREDIT UNION

Credit Union Information

BayPort Credit Union ("BayPort") was organized in 1928 as Newport News Shipbuilding and Dry Dock Co. Employees' Credit Union to serve the financial needs of shipyard employees and their families. BayPort now serves as a community-chartered credit union for the greater Hampton Roads area with 24 branch locations, over 120,000 members, and $1.5 billion in assets.

RDC Program Development

As with many other new products or services, BayPort setup a project team to assist with establishing its RDC program in August 2009. The initial project team consisted of vice presidents and managers from finance, operations, business services, member services, accounting, electronic services, and information technology. As the project progressed, the project team grew to include additional staff from the call center, compliance, training, electronic services, and business services.

BayPort first introduced RDC to both consumers and businesses in 2010. Both consumers and businesses initially could scan and deposit a copy of their check via a desktop scanner. RDC was then offered to consumers through an app via a smartphone in December 2012, the iPad in December 2013, and Android tablets in September 2015.

Product Selection

BayPort partnered with Ensenta for consumer deposits. Ensenta offers real-time transaction posting. For business members, BayPort partnered with ProfitStars to meet its business members' needs. ProfitStars offers batch file processing.

Item Processing

Ensenta has over 100 parameter driven risk filters that examine a wide range of potential risks and real-time transaction posting. Checks are grouped into two queues:

1. Needs review – Certain risk filters can be set to examine whether checks require further review. Checks that trip these filters are routed to a "needs review" queue. All items in the needs review queue have to be reviewed by staff.
2. One click approval – All items that did not trip any risk filters can be approved for inclusion in an image cash letter. A drill down capability allows staff to check item details if necessary.

Items can be corrected or returned with one of more than 25 reason codes. Items that pass review are moved to the "reviewed" queue for inclusion in the next image cash letter. Ensenta automatically rejected approximately 1,000 items in 2015 for various reasons (e.g., daily limit exceeded, duplicate item, etc.). BayPort made approximately 1,100 adjustments to members' accounts in 2015 for check returns and deposit-related errors made by members (e.g., deposit amount entered by a member via the app does not agree with the amount written on the check).

BayPort reviews RDC deposits throughout the day. All items needing review need to be looked at prior to 6:00 pm eastern time. Items not reviewed are posted to members' accounts, but are not included in the daily file sent to the Federal Reserve. This exclusion causes an outage within BayPort's network settlement.

Qualification

Consumer

BayPort offers four membership levels: Classic, Preferred, Select, and Premier. Relationship levels are based on a member's number of services or the combined monthly balances in deposits and loans. There are no fees to participate.

All consumers with a Preferred or above relationship status qualify for RDC. To qualify for Preferred relationship status, a member must have the following:

- Savings account in good standing.
- Checking account with direct deposit* or $10,000 average daily balance in a regular savings and/or checking account.

*Total monthly deposits must be greater than or equal to $500. As a substitute for direct deposit, if the direct deposit is less than $500, 10 monthly debit transactions will be accepted.

Business

For a business to be considered for RDC, it must meet the following:

- Be in operation for a minimum of two years.
- Meet credit qualifications established by policy and be assigned a risk rating no lower than a "4" (acceptable business credit).*
- Undergo training as prescribed by BayPort, including annual recertification.
- Satisfactory site visit.

*This requirement may be waived by unanimous agreement of BayPort's Member Business Loan Committee.

If a business or related company has a credit relationship with BayPort, the credit union uses the credit file for qualification purposes. If not, BayPort requires a personal financial statement and credit bureau report from the business's principal(s).

BayPort's Member Business Loan Committee may approve RDC qualification without a personal financial statement or credit bureau report. Historically, this exception has only been done where a business has lacked a principal that could offer a personal financial statement and credit bureau report (e.g., credit union, church, etc.).

Deposit and File Limits

Consumer

BayPort established a $15,000 daily limit for all members that qualify for RDC. There are no limits on the number of files a member can transmit each day.

Business

Velocity limits are set individually for each business based on normal usage amounts. BayPort's business lending department receives a warning when a business exceeds 85% of its velocity limit(s), such as single item, daily amount – both dollar and count, and monthly amount – both dollar and count. BayPort's business lending department also receives copies of all notifications sent to a business (e.g., transaction processed, processed with adjustment, rejected, duplicate item, etc.).

Funds Availability

In an effort to make funds more readily available for members, BayPort adjusted its check release criteria for electronic deposits in 2013. The revised criteria assigns each account a score based on the higher of average daily balance or direct deposit amounts.

Other qualifications include:

- Account has been open for six months.
- No shares have been charged off.
- Member has a beacon score greater than or equal to 640.
- Account is not designated as a "limited" relationship.

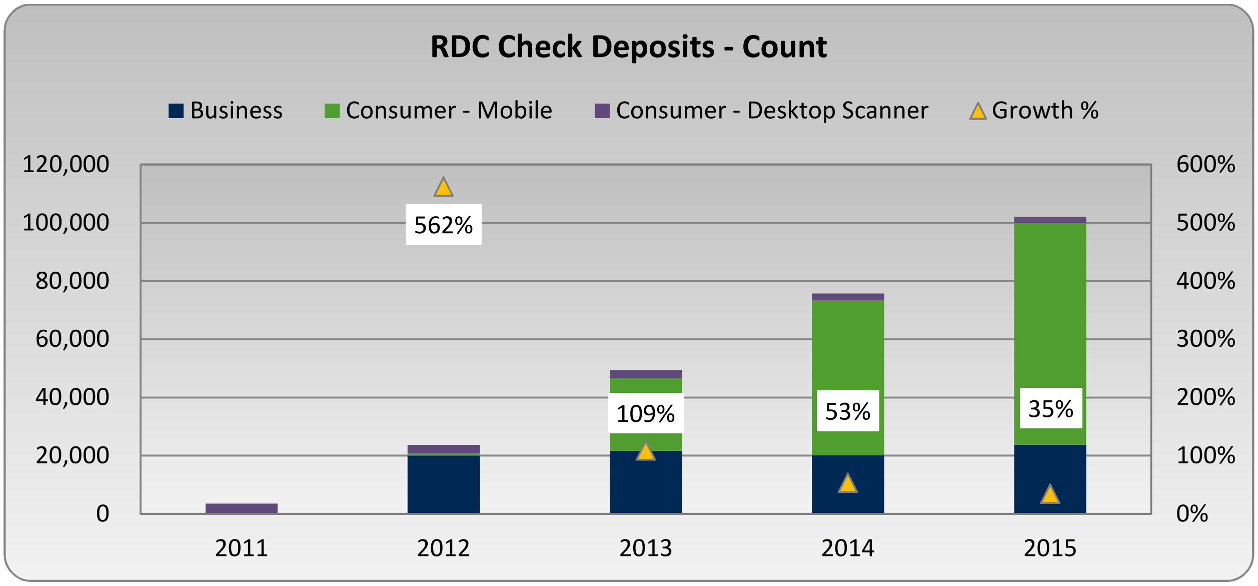
The per day check release amount is determined as follows:

If the account score is:	Release Amount
Less than 1.00	$ 200
Greater than or equal to 1.00, but less than or equal to 1.99	$ 1,000
Greater than or equal to 2.00, but less than or equal to 2.99	$ 2,000
Greater than or equal to 3.00	$ 3,000

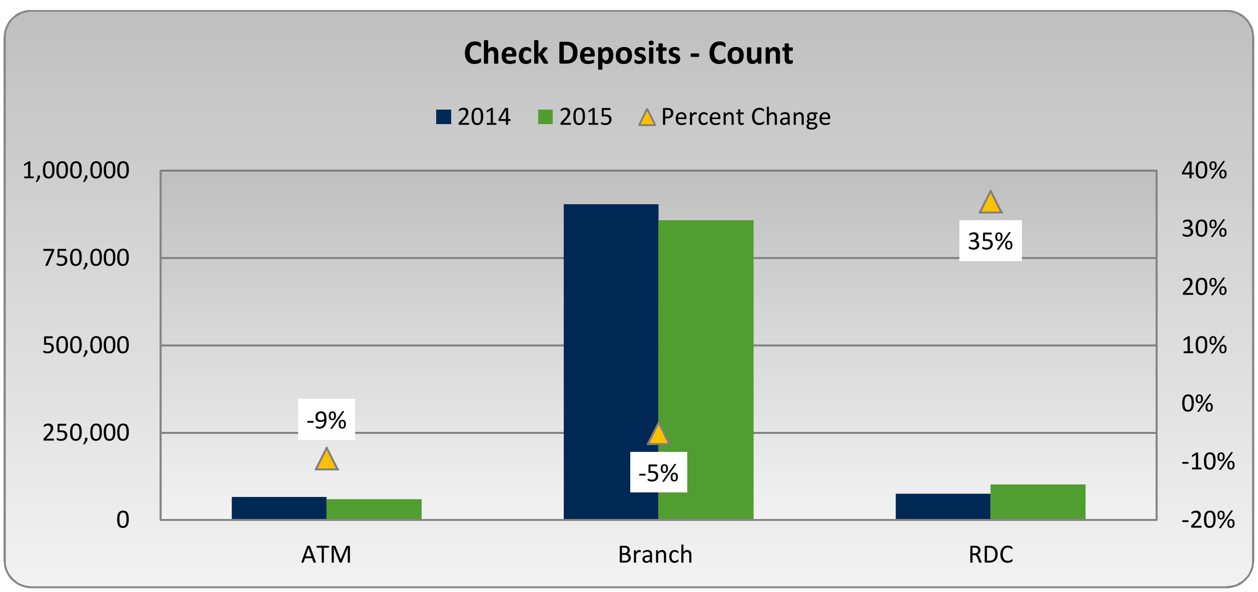
Fraud Experience

In 2015, BayPort had $2,327 in losses as a direct result of RDC deposits. In addition, BayPort's fraud department worked 18 altered/forged endorsement and 19 counterfeit items related to RDC deposits in 2015.

RDC's Impact on Traditional Check Deposits
Since RDC's inception in late 2010, RDC check deposits have rapidly increased. The following chart shows the number of RDC check deposits and annual growth from 2011 to 2015. Since 2013, the surge in RDC deposits is almost entirely attributable to mobile check deposit by consumers.

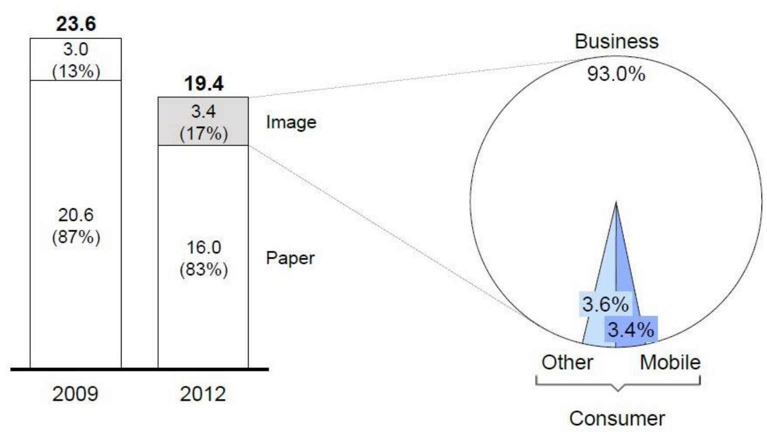


From 2014 to 2015, the number of check deposits made via ATM and in-branch have decreased by 9% and 5%, respectively, while RDC deposits increased by 35%. The following chart shows check deposits by type and percent change from 2014 to 2015. The number of check deposits made via ATM and in-branch were not available from 2011 to 2013.



According to the *2013 Federal Reserve Payments Study*, the estimated number of checks deposited in 2012 was 19.4 billion, a decline from 23.6 billion in 2009. Despite this decline, the number of checks deposited as images increased from 3 billion in 2009 to 3.4 billion in 2012, resulting in an increase of 3.6% per year (2013 Federal 29). The following chart shows checks deposited by format and type of accountholder.

Checks Deposited by Format and Type of Accountholder

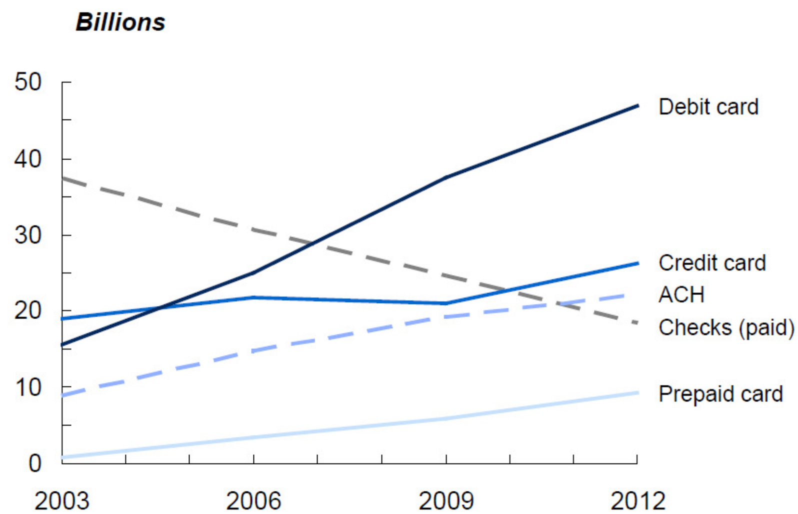


Figures may not add due to rounding.

Source: 2013 Federal Reserve Payments Study

To better understand the decline in the number of checks deposited from 2009 to 2012, it is necessary to additionally examine trends in noncash payments. The number of checks paid continued to decline, falling to 18.3 billion in 2012 – less than half the number of checks that were paid in 2003 (2013 Federal 8). Conversely, the use of debit cards, credit cards, ACH, and prepaid cards all increased from 2003 to 2012. The following chart shows trends in noncash payments by number and type of transaction.

Trends in Noncash Payments by Number and Type of Transaction



Debit, credit, and prepaid card trends include general-purpose and private-label payments.

Source: 2013 Federal Reserve Payments Study

Based on the *2013 Federal Reserve Payments Study*, it is evident that consumers are moving away from the use of checks as a form of noncash payment. As one might expect, as consumers are moving away from the use of checks, the overall number of checks presented for deposit is decreasing.

As noted in the charts and discussion above, BayPort's RDC check deposits have rapidly increased since 2010. During part of this time, from 2014 to 2015, the number of check deposits made via the ATM and in-branch declined by 9% and 5%, respectively. It appears that RDC is having some impact on the number of checks presented for deposit at the ATM and in-branch. As consumers move more of their routine financial transactions to a self-service model (e.g., internet banking, mobile, interactive teller machines, etc.), this trend will reduce the number of traditional transactions performed by members via a branch or call center, allowing frontline staff to focus on deposit and loan growth.

In a bigger picture, the United States as a society is moving away from the use of checks as a form of noncash payment, which will continue to reduce the number of overall checks presented for deposit as a whole.

An updated payments study (e.g., 2013 to 2015) from the Federal Reserve was not available as of the date of this report.

CASE STUDY – GEORGIA'S OWN CREDIT UNION

Credit Union Information
Georgia's Own Credit Union ("Georgia's Own" or the "Credit Union") has 185,000 members, over $2 billion in assets, with 20 branches in the Atlanta-metro area, one in Augusta and one in Savannah.

RDC Program Development
Georgia's Own implemented mobile RDC in September 2014. The Credit Union's goal was to shift a large portion of the transactional foot traffic from the branches to the mobile channel to allow frontline staff to focus on deposit and loan growth.

Below are challenges and solutions Georgia's Own experienced with setting up its RDC program.

Challenges

- Neither the Credit Union's core nor its online banking provider could provide the necessary tools to be able to auto-decision mobile deposits hence this would be a manual process.
- Deposit fraud continues to be the leading cause of fraud losses with the exception of the Home Depot card breach.
- There were no back office operations employees with any deposit or check fraud experience and it was determined RDC would be a back office function.
- Mobile deposits have an automatic two-day hold. The first $200 is released the following day and the remainder of the hold is released the second day.

Solutions

- The Credit Union's operations area recruited two internal teller supervisors experienced in member deposits and fraud.
- The team created a template using the following criteria to allow members to be put into buckets with different auto-decisioning limits:

    1. Age of account
    2. Account type
    3. Account status
    4. Credit score
    5. Deluxe detect score

Item Processing
All member deposits must be manually reviewed for the first mobile deposit. Georgia's Own had 344 returned checks totaling $348,853 in 2015.

Qualification

Following the first mobile deposit, a decision is made by the RDC staff member as to which user group (i.e., Bronze, Silver, Gold, Platinum/Business) the member belongs. The account is then manually coded with the appropriate user group. The aforementioned user groups determine individual check limits and the daily deposit allowance a member is afforded without the manual review process. All deposits still post at the same time. The user groups only determine whether or not the deposited check must be manually reviewed and approved before posting to the member's account.

The table below shows the Credit Union's system parameters and criteria by user group.

Mobile RDC User Groups

Parameters	Default	Bronze		Silver	Gold	Platinum/Business
						Requires VP Authorization
Scan Item Limit	$10,000	$10,000		$10,000	$10,000	$20,000
Daily Item Review Limit	1	2		3	3	5
Per Item Review Limit	$50	$200		$1,000	$3,000	$5,000
Daily Review Limit	$50	$200		$2,000	$5,000	$10,000
Criteria		**Must meet all of these requirements**		**Must meet all of these requirements**	**Must meet all of these requirements**	**Must meet all of these requirements**
Length of Membership	Any	5 Years	Minimum 6 months	Minimum 6 months	Minimum 12 months	Minimum 12 months
Product	Any	Ix, All Access, Golden Bell and Business		All Access, Golden Bell and Business	All Access, Golden Bell and Business	All Access, Golden Bell and Business
Minimum Credit Score	Any	None	620	700	750	800 - Platinum
Loan Delinquency	Any	Not to exceed 30 days		Not to exceed 10 days	Not to exceed 10 days	Not to exceed 10 days
Locks/Warnings	Any	No Locks/ No 90 or 99 Warnings		No Locks/ No 90 or 99 Warnings	No Locks or Warnings	No Locks or Warnings
Negative Balances	Any	None		None	None	None

Consult ERM for any questionable deposits.
Record all returned deposits on spread sheet
New Account deposits receive a 9- day check hold for the first 30 days
Do not place holds on checks less than $200.00 unless there is reasonable doubt
The following checks receive a 7 day hold: Checks over 5k; Re-deposited checks; Doubtful collectability
Employee deposits should be approved and given to a manager or above to be placed in the appropriate user group

There was only one recent change made to the parameters after one year of implementation. Georgia's Own discovered that approximately 20% of the deposits were under $50 and decided to take the risk to auto-decision those items as opposed to having to manually review and approve. This allowed Georgia's Own to not increase the number of full-time employees while the increase in deposits continued to grow.

Georgia's Own will continue to monitor this decision and has already made the decision to increase the auto approval process for all checks up to $100 at such time when the growth reaches another substantial level that would require a staffing increase.

Fraud Experience
The Credit Union's fraudulent check deposits continue to be comparable to branch deposits. However, most of the fraudulent RDC deposits have significant extended holds to prevent an actual loss. Until now, Georgia's Own had not been able to successfully track the charge offs suffered via RDC due to the fact that we had not included the channel in our charge off reports. This has since been rectified and going forward, we will be able to track the actual channel the loss occurred through.

Below is a list of common fraudulent RDC check deposits:

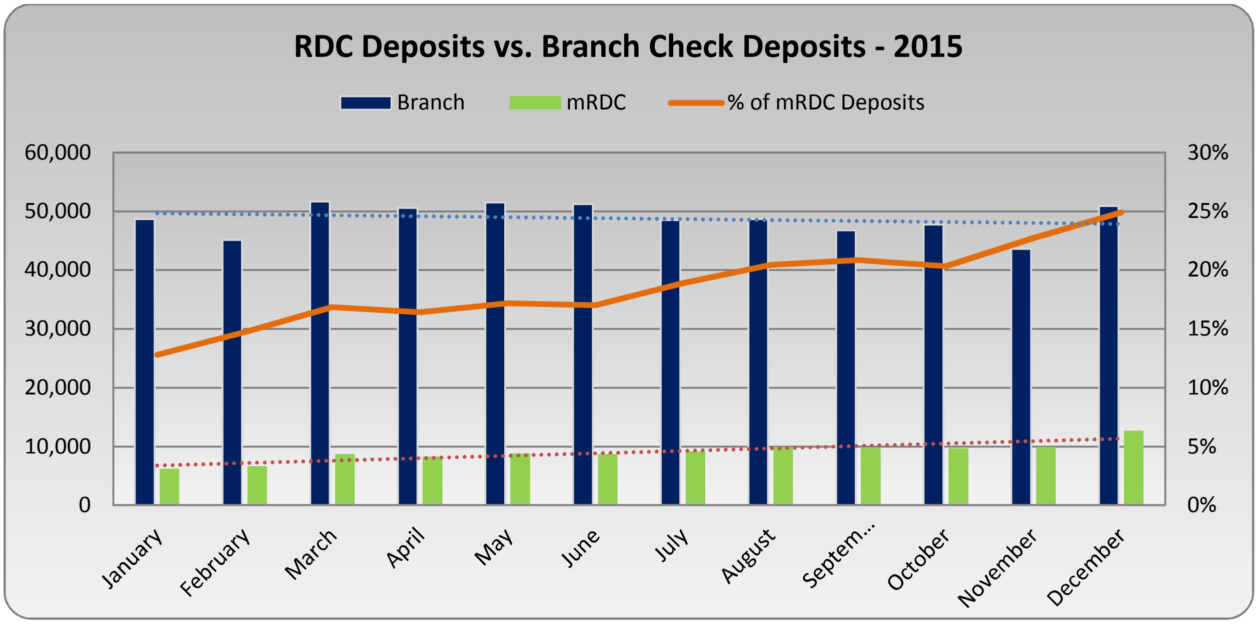
- Fictitious business checks
- Closed personal and business accounts
- Altered checks/money orders
- Blocked/frozen accounts
- Stop payments
- Duplicate check deposits (majority are honest mistakes)
- Not sufficient funds (NSF)

RDC Risks
Below are RDC risks identified by Georgia's Own:

- Ages 18 to 22 fraud – Young members give their login info to a crook to make a fraudulent deposit into their account. As soon as the funds are available, the member withdraws the funds and splits the funds with the crook. When the check is returned, the member claims they did not make the deposit and can prove it because it was not done from our member's phone. The member demands the money back.
- New account fraud – Georgia's Own attempts to place a nine-day hold for all new accounts with deposits in the first 30 days. Some new members will wait until after 90 days and then make a series of small deposits going unnoticed with no holds. Then, they deposit larger items back-to-back and those deposits eventually are returned.
- Duplicate deposits – While most duplicate deposits are honest mistakes, there are some members who will make a mobile deposit with Georgia's Own and then days or weeks later, deposit the check again. In most cases, the item is rejected the second time it is presented.
- The Credit Union's biggest concern is when a member deposits a check via RDC and then attempts to deposit or cash the same check somewhere else. This was particularly alarming in the case of postal money orders. Georgia's Own was originally assured that the first financial institution to deposit a RDC check would retain the funds and any additional collection efforts would be returned. The Credit Union's corporate account was debited claiming that the financial institution holding the physical check has the ultimate right to collect. There are no regulations in place to prevent a financial institution from suffering any amount of losses at any given time. This seems to be the most alarming discovery regarding RDC and the lack of regulation.

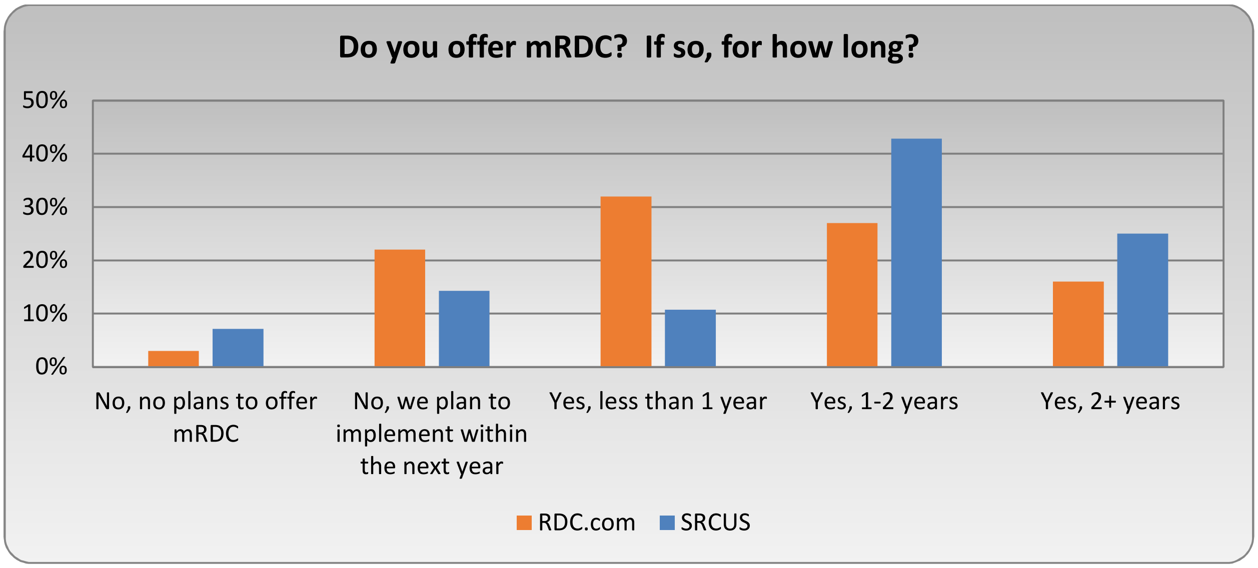
RDC's Impact on Traditional Check Deposits

In January 2015, RDC deposits were only 13% of all branch check deposits. In December 2015, RDC deposits accounted for 25% of branch check deposits. Overall, RDC deposits accounted for 19% of all branch deposits. While the reduction in branch deposits is not significant enough to reduce branch staffing or reduce the branch footprint as of yet, the Credit Union's members are quickly adopting RDC.

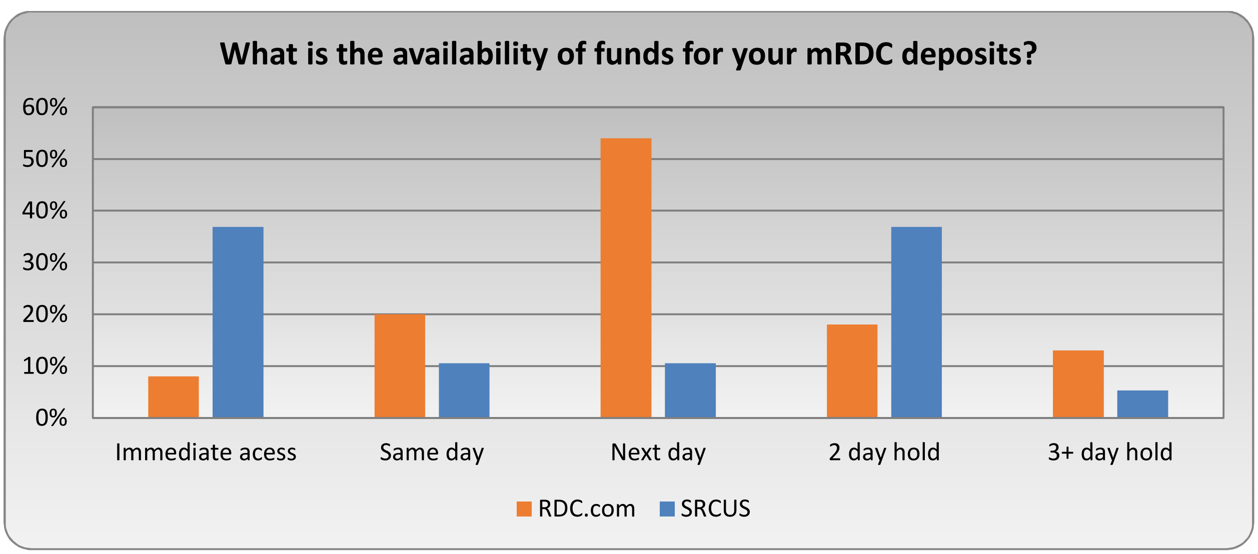


SURVEY

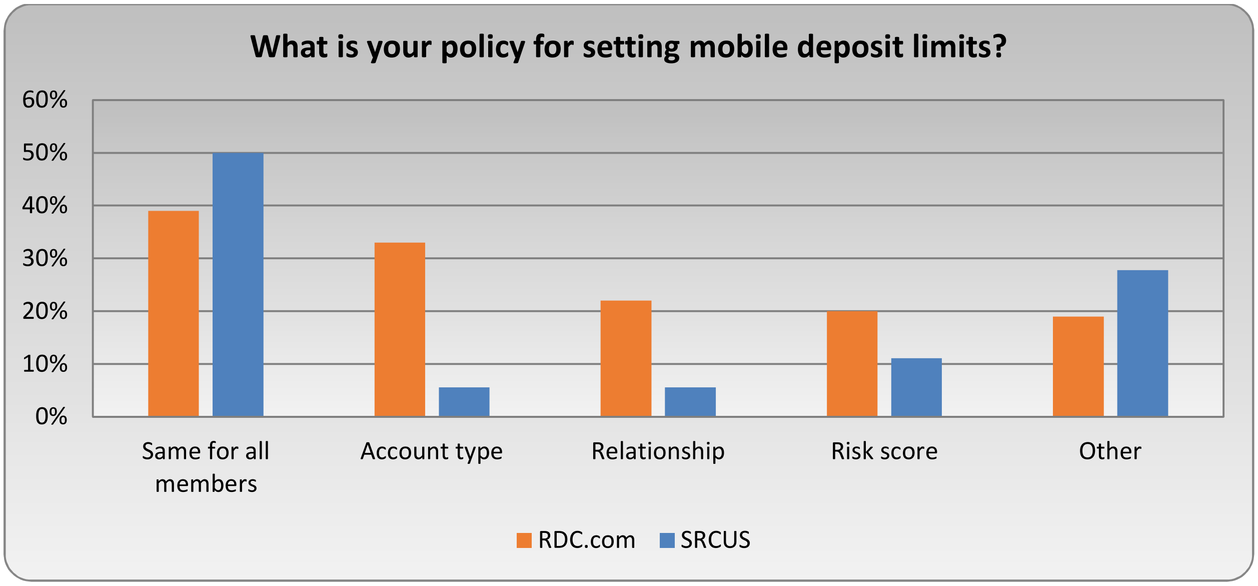
In 2015, RemoteDepositCapture.com ("RDC.com") performed a survey to measure the perception, usage, and experience of financial institutions with respect to mobile RDC (Leekly). The survey included responses from 255 banks and 67 credit unions. Our group also performed a similar survey of 28 of our fellow SRCUS credit unions from the Class of 2016 and compared our results to those of the RDC.com survey along with a few additional survey questions of our own. A brief analysis follows each chart.



Analysis
The majority of financial institutions offer mRDC.

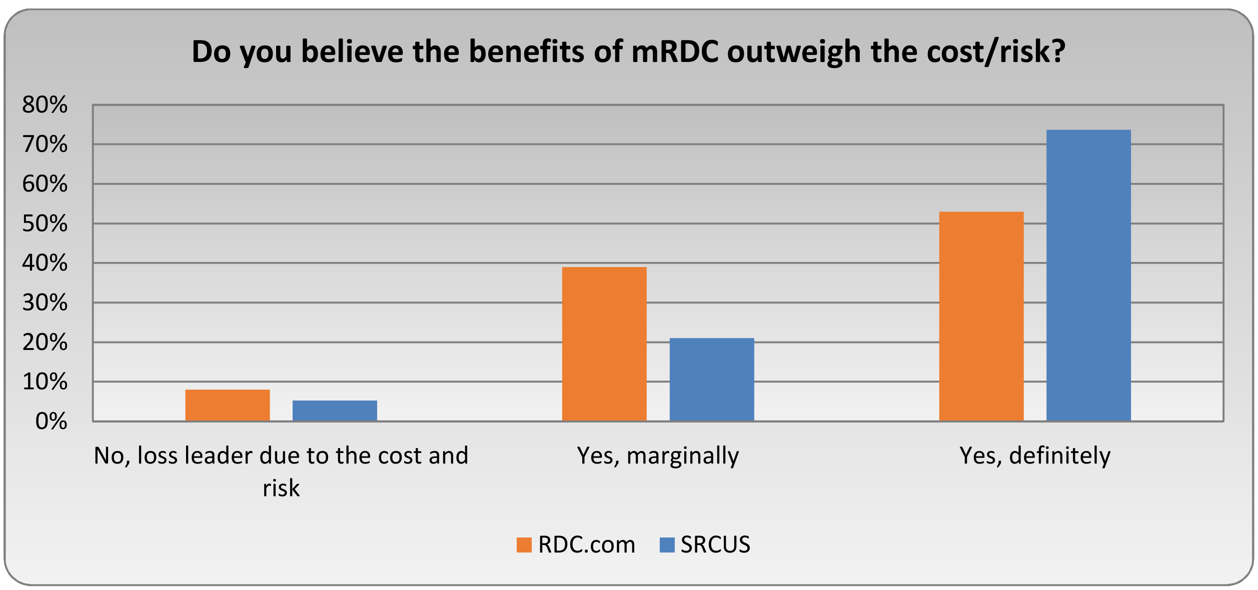


Analysis
The results of both surveys were mixed. SRCUS respondents tend to release funds immediately or hold for a standard two days whereas most RDC.com respondents offer next day availability.



Analysis

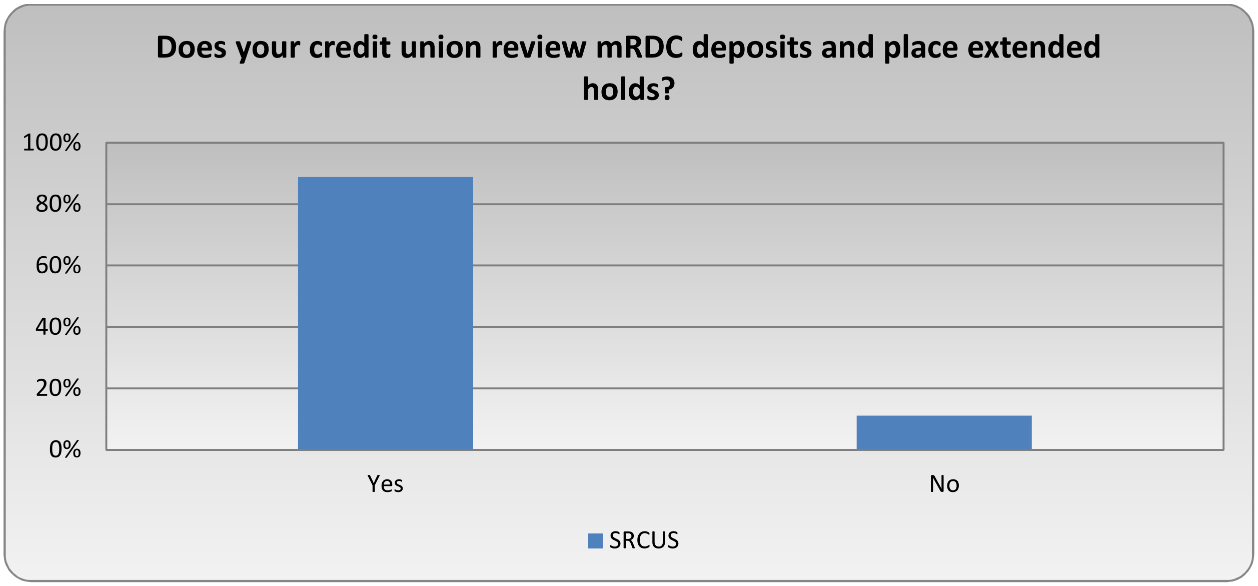
Most respondents from both groups apply the same policy for all deposits regardless of deposit type. Over 60% of the RDC.com respondents take a customized approach to setting limits.



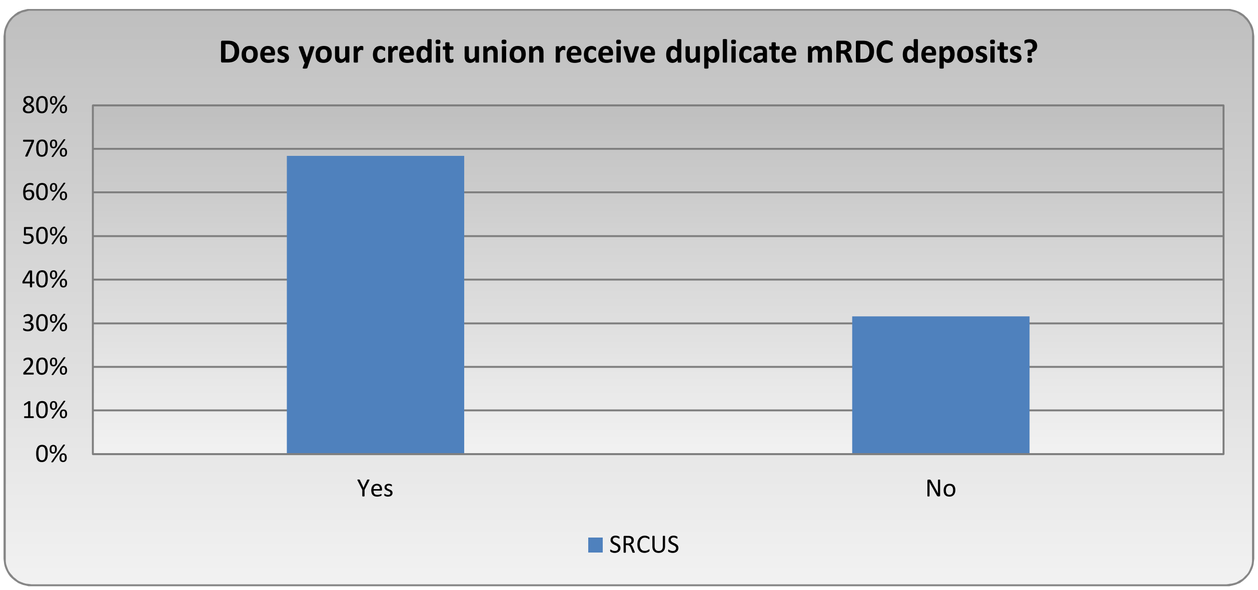
Analysis

92% and 95% of RDC.com and SRCUS respondents, respectively, feel the benefits of mRDC outweigh the cost/risk.

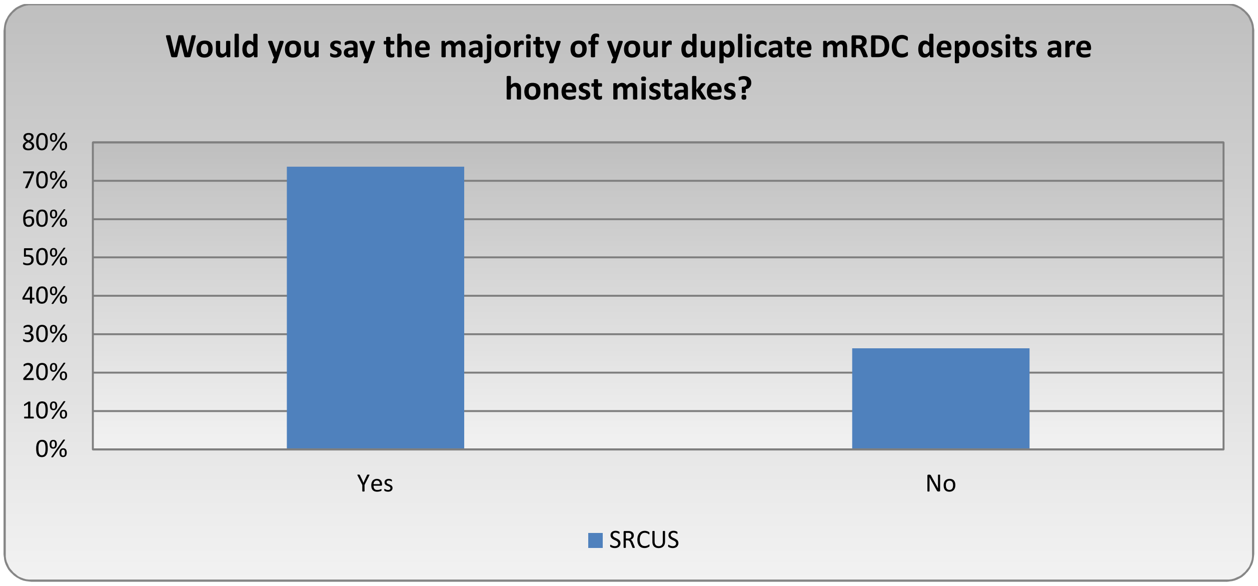
As mentioned above, our group included additional questions in our survey of fellow SRCUS credit unions from the Class of 2016.



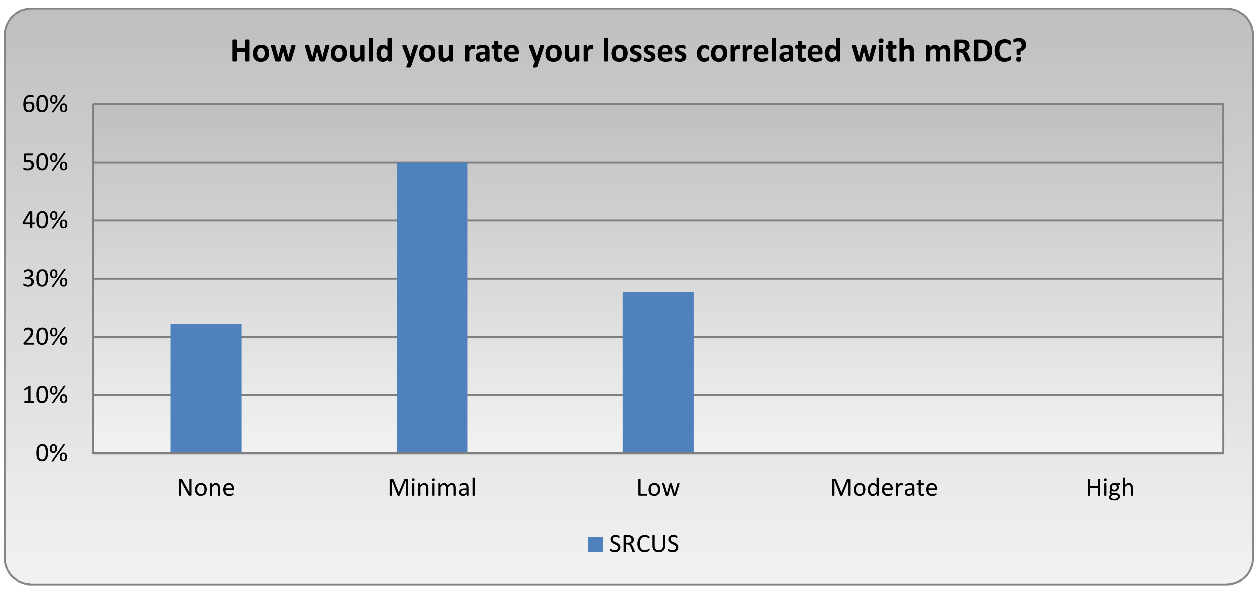
Analysis
Overwhelmingly, 89% of SRCUS respondents review deposits and place additional holds.



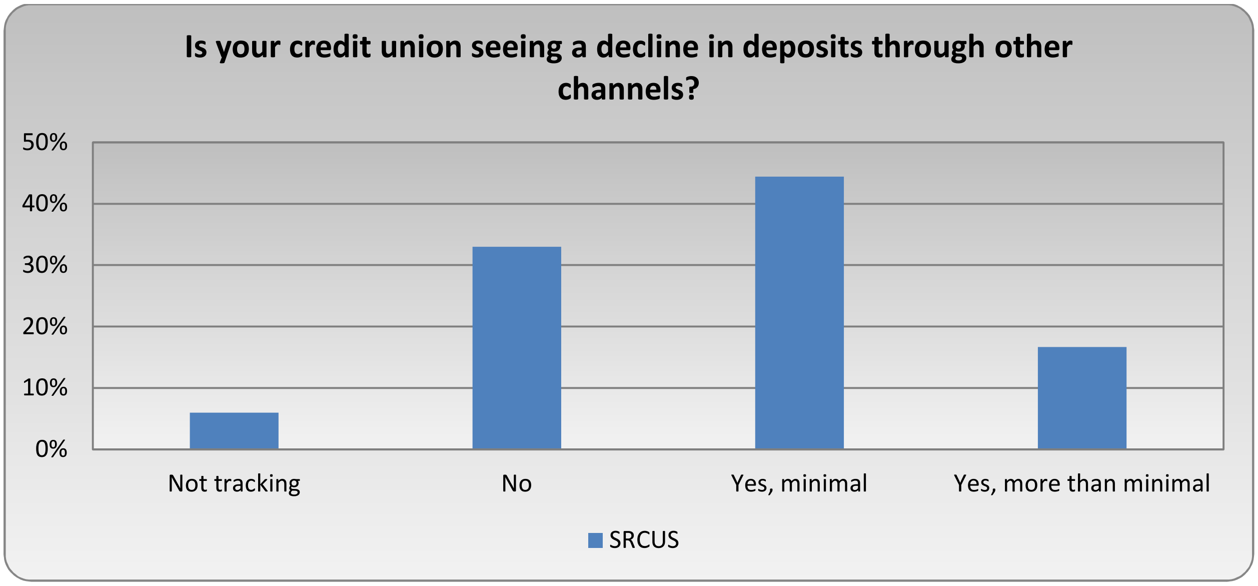
Analysis
68% of SRCUS respondents reported receiving duplicate deposits.



Analysis
74% of SRCUS respondents believe the majority of duplicate deposits are honest mistakes.



Analysis
All SRCUS respondents stated that their mRDC losses are low or less compared to losses incurred through other channels (i.e., branch, ATM, debit cards, etc.).



Analysis

44% of SRCUS respondents report a minimal decline in deposits through other channels whereas 33% of SRCUS respondents have not seen a decline. It is possible that many credit unions are not yet analyzing the data close enough to know exactly how much deposits are declining in branches.

RECOMMENDATIONS

Credit unions considering offering RDC will want to evaluate the following to determine if RDC is right for them:

- What are the benefits of offering this product to both the membership and the organization? What are the potential costs of not offering this product to the membership?
- Do we have the existing infrastructure (e.g., mobile banking app, image storage, etc.) in place to support this product offering?
- What are the dollar costs – both initial investment and ongoing?
    - Both implementation and ongoing operational costs for RDC can widely vary depending on a credit union's size, existing infrastructure, vendor, etc.
    - Below is an estimate of both implementation and ongoing operational costs.

Implementation Cost	
RDC application	$10,000
Operational Costs	
Transaction fee, per item*	$0.32 to $0.50
Other fees, monthly**	$350 to $600

      *Pricing can be a fixed cost per item or a sliding scale (e.g., first 5,000 items are $0.40 per item, $0.35 for the next 5,000 items, etc.)

      **Other fees can include a mobile fee, issuer fee allowing a vendor to use a network for real-time account posting, temporary archiving, etc.

    - Additional costs not detailed above could include separate fees for RDC programs that are on different platforms (consumer versus business), single sign-on capability, annual maintenance, image center upgrade, etc.
- What are the potential cost savings with offering this product?
    - Cost savings associated with RDC should be evaluated in terms of "how much does this product in combination with other strategies migrate transactions to self-service channels"? Cost savings through RDC is only realized when a proportional cost reduction in the branch operating infrastructure is affected.
    - In terms of time savings, BayPort encourages its business members to use RDC as it eliminates the significant processing time it takes branch staff to perform a business deposit due to the high number of checks.
- Do the benefits of offering this product outweigh the costs?
- Can we properly mitigate the risks associated with this product offering?

Below is a discussion of the benefits to both the membership and the credit union with offering RDC, risk mitigation tactics, and other considerations, including data and the member experience.

Benefits
Establishment of a RDC program can result in many benefits to both the member and the credit union. Below are a few of the benefits of a RDC program.

Member

- **Empowerment**
  Members will no longer be bound to a financial institution defining when they can perform their business due to limited business hours. Members now have the choice to bank any time they want from wherever they want.
- **Time savings**
  Members will now be able to forgo driving to a branch and standing in long lines just to deposit a check.
- **"Wow" factor**
  Simply knowing that their financial institution provides one of the latest technologies can be impressive. The added convenience and ease of use RDC provides strengthened ties to the credit union.

Credit Union

- **Catalyst for growth**
  As the market becomes more competitive and consumers' lives become more hectic, they are looking for convenient ways to do their business. Offering such a program can curb member attrition and spark new growth.
- **Targets millennials**
  Credit unions' members continue to age, and to stay viable, credit unions must target millennials to continue growth. RDC is one of those products this group expects of any financial institution.
- **Provides level of control**
  Although some level of control is handed to the member, depending on the implementation, RDC centralizes check review and minimizes fraud losses. Checks can be reviewed by a core group of back office personnel that are strictly focused on reviewing checks for accuracy. Check deposits made through the branch channel must pass through typically a large and diverse teller staff. Each teller could have their own interpretation of an item presented. In addition, tellers have the added pressure of making a decision with a member in front of them which can lead to more errors, resulting in higher incidents of fraud.
- **Increase member loyalty**
  RDC has the potential to increase member loyalty by increasing the number of services owned and providing the peace of mind that they have the option to bank at any time with their credit union.
- **Elimination of geographic boundaries**
  Credit unions in particular are bound by charter to certain areas. There are also finite resources to build new branch locations. RDC breaks down those boundaries allowing the member to deposit funds no matter their location.

Risk Mitigation

According to the FFIEC, "although deposit taking is not a new activity, RDC should be viewed as a new delivery system and not simply as a new service" (Risk Management of Remote Deposit Capture 1). RDC does increase certain legal, compliance, and operational risks. It is recommended that credit unions consider the following when offering a RDC service:

- **Risk assessment**
  FFIEC guidance suggests that you start with a thorough risk assessment that identifies the legal, compliance, and operational risks related to RDC (Risk Management of Remote Deposit Capture 1). The completion of the risk assessment will assist in the development of internal controls to mitigate these risks.

- **Legal and Compliance**
  Credit unions should consider the process used to capture, transmit, and settle checks for deposit to mitigate the legal risk of patent infringement. Consider contracting with a vendor, versus an in-house solution, that will indemnify the credit union. If possible, obtain a representation from the vendor that it does not infringe on patented technology.

  There are several regulations that credit unions should consider, including the Check 21 Act, Regulation CC, Regulation DD, and the BSA. The Check 21 Act establishes an indemnity for losses incurred by a paying bank from a substitute check. A paying bank may file an indemnity claim for losses resulting from a substitute check that does not contain the security features from the original check which the paying bank would have identified if the original item were presented. The check would have to be an amount large enough to prompt the paying bank to look for the security features. Pre-qualifying RDC users, reviewing deposits for an initial service period, and limiting the dollar amount of a check deposited are all recommended internal controls that reduce the risk of loss from fraudulent checks deposited remotely.

  Compliance with Regulation CC is evolving as amendments are currently being proposed that could considerably increase the liability from a RDC deposit. Currently, Regulation CC funds availability requirements do not apply to RDC deposits since they do not fit into the definition of when a deposit is completed. It does require notice be given to members of when their deposits will be available. It is recommended that account disclosures and funds availability notices clearly define when funds will be available from mobile deposits.

  The establishment of a RDC contract with the member will also help with the Check 21 Act and Regulation CC compliance. A well-defined contract will detail each party's responsibility and liability. It should define check retention requirements for members to assist in fraud investigations. The contract should also detail laws, regulations, and rules governing the deposits. It needs to define dispute resolution and funds availability. Defining deposit limitations, fees charged for the service, along with other previously recommended disclosures will also satisfy several Regulation DD requirements.

  Additionally, mobile deposits can complicate BSA compliance by removing the ability for credit union staff to detect suspicious activity at the time of deposit. It is recommended that mobile deposits have specific coding that identifies mobile activity and enables account monitoring to detect layering. By prohibiting money orders, third party checks, and foreign items from mobile deposits, credit unions can deter money laundering.

- **Operational**
  By allowing members to deposit checks remotely, credit unions are relinquishing operational control over a function that has traditionally been completed by its back office staff. The credit union will no longer be able to control the capture, retention, and destruction of sensitive information. Defining the member's responsibility for these processes in the member contract will help mitigate these operational risks.

  Other operational considerations include the technology requirements for the equipment members are allowed to use when capturing images in order to prevent the storage of sensitive member data on unsecured media. Technology requirements for image quality are also important to ensure image standards necessary to produce a substitute check. Finally, authentication methods for member access to RDC should be considered to prevent unauthorized access.

Data
System reports from a RDC solution can provide an abundance of information, including data related to performance and efficiency, compliance, fraudulent activity, and customer quality (Risk Management and Remote Deposit Capture). Below are considerations related to evaluating RDC data.

- **Identification**
  Financial institutions will need to identify the current and future information needs of the organization. In order to perform an analysis of RDC's impact, financial institutions will need to be able separately identify check deposits made via mail, ATM, in-branch, and RDC. A financial institution will also want to consider where to get the data (i.e., image cash letter sent to the Federal Reserve, internal reports, RDC software, etc.).
- **Validation**
  Ever heard the phrase "garbage in, garbage out"? It is critical to ensure the information going into a system and coming out of it is accurate and complete. Financial institutions should perform independent checks on the quality of the data.
- **Extraction**
  Financial institutions will want to investigate the means by which data can be extracted from a system, including file type (e.g., PDF, Microsoft Excel or Access, crystal report, screen shots, etc.) and limitations on date extract (e.g., system will only allow a user to extract 30 days of data at a time).
- **Retention**
  It is important to understand how long the data needed is available. Depending on the amount of history desired, it may be necessary to perform periodic extracts.

Member Experience
In the midst of an overcrowded financial services marketplace that is both highly competitive and fragmented, it is imperative for a financial institution to maximize its members' experience

across all channels. Below are ways for a financial institution to maximize its members' experience with respect to a RDC program:

- **Useable image**
  "A high percentage of usable images translate to superior levels of customer satisfaction and adoption" (Ballagh). A mobile app or desktop scanner should be able to acquire a readable image consistent with the Federal Reserve's standards.
- **Real-time posting**
  It is important for members to see their account balances updated in real-time in contrast to a delayed posting (i.e., batch processing).
- **Communication**
  Every message sent to a RDC user is an opportunity to engage with the member and create a positive experience (Ballagh). Error or warning messages should be clearly worded. A custom message is always preferable versus a generic, ambiguous message created by third-party software.
- **Support**
  When needed, RDC users expect a knowledgeable person to be available to help them. It is important for support staff to have real-time audit tools of the entire user experience, including failed images (Ballagh). Moreover, support staff should be able to research the session history, access related images, and walk the user through error resolution.
- **Consistency**
  Users should have a consistent "look and feel" and branding across all channels, including home banking, and mobile and tablet devices. This will allow for greater ease of use.

SUMMARY & TEAM MEMBERS' CONCLUDING REMARKS

Summary

As technology advances with an ever quickening pace, credit unions must find ways to adjust to changes as they unfold. This is a difficult task for many credit unions, as many of these institutions are slow to change based on the conservative nature of the industry as a whole. It can be difficult to make the argument that credit unions should be innovative in their thinking, since a long history of conservative thinking has been the leading cause of why they have survived so long.

However, times are changing quickly. The financial services industry has become extremely competitive, with companies that appear to have seemingly endless pockets and resources jumping into the game, stepping on the toes of traditional financial service providers. It is time that credit unions once again tap into the innovative spirit that began the movement so many years ago in the late 19^{th} century. Millennials now outnumber the baby boomer generation and credit unions should find new ways to serve this group in the manner in which they want to do business.

Mobile banking and RDC is just one facet of new technology that empowers consumers to bank however they want. There are risks involved in implementing such a technology, but the risk of avoiding the technology and losing market share and relevance outweigh the risks of implementing the product. Of course credits unions should heed their conservative roots and implement a strategy to mitigate the risks associated as much as possible, as we have to continue to be good stewards of our members' money. However, credit unions must adapt and move forward with the times.

Team Members' Concluding Remarks

Barbara Burkett

I believe Georgia's Own made the right decision to implement RDC. Our members continue to migrate to RDC at a steady pace and we receive additional lift when we promote the services.

Our success truly comes from having the right team members managing the day-to-day operations. Having highly skilled teller supervisors with many years of branch experience ensures that our member experience through all channels will be consistent. The RDC team knows our membership well and is highly successful in identifying fraudulent transactions.

Since writing this paper, we have made a couple of changes to our policies and procedures. One of the changes was to automatically accept all deposits under $50 without review. This has allowed us to accept approximately 20% more deposits without manually reviewing them or suffering any credit union losses. We will probably move that marker in $50 increments as our deposits continue to grow. We also realized that while we were keeping track of the number of returned checks and reason codes, we were not tracking whether or not those returned items actually resulted in any hard losses. What we did find is that we have a much lower charge-off rate due to the fact that most of the duplicates were honest mistakes. However, we have now added a "reason code" and "channel" to our deposit charge off list and are excited to know that next year we will have much better results to analyze.

My biggest concern continues to be the lack of regulation around mobile deposits and the future decisions affecting the collection of funds without the fear of future returns.

This white paper has given me the opportunity to spend some much needed time analyzing the data and procedures we originally put in place and then tweaking them to ensure we can continue to grow deposits without adding additional staff. It is important to review procedures on a regular basis because our member behavior tends to change at a faster pace than our written procedures.

Shelly Day

As a $50 million credit union that is planning the implementation of RDC in the next twelve months, the insight gained from the preparation of this paper has convinced me that the benefits of offering it exceed the risks.

The area in which my credit union, Health Center Credit Union, is serving has experienced a considerable shift in makeup. Ten years ago, there were 10 “local” credit unions with most less than $100 million in assets and two “non-local” credit unions with assets closer to $1 billion. Now, the area has five “local” and five “non-local” credit unions. Health Center Credit Union is challenged to compete with the resources the larger credit unions bring to the area. Being able to offer RDC helps level the playing field. It broadens Health Center Credit Union’s appeal to both current and potential members by offering a service that allows them to conduct business without visiting a branch. This expands the credit union’s service footprint without investing its capital in brick and mortar locations. This is a benefit for both members and Health Center Credit Union.

I believe the risks associated with RDC can be effectively mitigated with proper internal controls. The restrictions placed on member activity have to be balanced with a positive member experience. Restricting the service too much can make it less appealing. As regulations governing mobile deposits evolve, Health Care Credit Union will have to reevaluate the risks associated with the service and adjust accordingly.

Dan Elston

RDC allows a financial institution’s members to deposit checks anytime, day or night, when it is convenient for the member. The days of deposit slips, lines of people or waiting to use the ATM are gone. Moreover, RDC allows members to save time and money that would be required with the traditional trip to the local branch.

Part of this whitepaper’s intent was to examine the impact RDC is having on traditional check deposits. It appears that RDC is having some impact on the number of checks presented for deposit at the ATM and in-branch. However, in a bigger picture, the United States as a society is moving away from the use of checks as a form of noncash payment, which will continue to reduce the number of overall checks presented for deposit as a whole. It is fascinating to think about where the payments industry may be in the next five to ten years when considering new payment technologies, such as Apple Pay and Samsung Pay, person-to person payments made via a smartphone, etc.

I believe this whitepaper sufficiently allows a financial institution to consider the risks and benefits of setting up a RDC program, and provides a framework for setting up a RDC program. One of the areas BayPort is currently evaluating is how to properly offer its RDC program to more members, specifically those members that do not meet the relationship status necessary to qualify for RDC. This initiative will most likely require additional risk mitigation tactics to reduce losses.

Lastly and most importantly, I would like to take this opportunity to thank a few people. I would like to thank my fellow teammates: Barbara Burkett, Shelly Day, and Sean Leavell for all of their hard work in helping put together this whitepaper and the synergy they brought to our group. I would be remiss if I did not thank Marilyn Lamb, BayPort's eCommerce Manager, and her staff for all of their guidance and support in helping me examine BayPort's RDC program. I would also like to thank Jim Mears and Wendy Brown, BayPort's Chief Operating Officer and Vice President of Human Resources, respectively, for encouraging me to attend SRCUS in May 2014. Finally, I would like to thank my wife, Tiffany, and son, Tyler, for their unconditional love and support during this process.

Sean Leavell

Since beginning my journey at SRCUS, I have had the opportunity to stretch my tent pegs both in the course work and at Georgia's Own. My career has been heavily lending focused. SRCUS has opened my eyes into the entire operations of a credit union, making me a more well-rounded manager and better decision maker. Along this journey, I have moved from Assistant Vice President of Lending Operations to Internal Coordinator which includes managing our core conversion project which affects every single aspect of Georgia's Own.

Researching for this paper has not failed in expanding my knowledge in an area that was typically outside my range of vision. Millennials make up the largest segment of the population now, and research has found they prefer to get their service when and where they want it and it must be easy and convenient. As the majority of smart phone users are millennials, credit unions must change quickly and adapt to new technologies to remain competitive in the marketplace. New technology always represents a risk, but with the appropriate safe guards, credit unions can take advantage of newer technologies and protect their members' money. This is a fine balance for credit unions as new technologies are in most cases cost prohibitive, but one must weigh those costs with continued growth or possible irrelevance.

These are exciting times that we are living in and we are seeing new technologies introduced all the time. It will be interesting to see how virtual reality takes off and what sort of impact that may have on the financial services world. Could you put on a pair of Oculus goggles and step into a virtual credit union branch, make a deposit or apply for a loan? Who knows, but it is something we should be thinking about!

REFERENCES

"2013 Federal Reserve Payments Study." Federal Reserve System. Federal Reserve System, 19 Dec. 2013. Web. 4 Mar. 2015.

Ballagh, Jim. "Eight Habits of Highly Effective mRDC (Mobile Remote Deposit Capture)." Ensenta. Ensenta Corporation, N.d. Web. 13 Aug. 2015.

"Consumers and Mobile Financial Services 2015." Board of Governors of the Federal Reserve System. Board of Governors of the Federal Reserve System, 26 Mar. 2015. Web. 1 Jul. 2015.

"CUNA Mutual Releases Risk Alert Regarding Remote Deposit Capture." Anthem Newsletter. NWCUA 23 Jan. 2015. Web 23 Jan. 2015.

"Key Benefits of Remote Deposit Capture for Banks." Remote Deposit Capture. Remote Deposit Capture, N.d. Web. 14 Aug. 2015.

Leekley, John. "The 2015 mRDC Industry Study." RemoteDepositCapture.com. Remote DepositCapture.com, 6 Nov. 2015. Web. 5 Mar. 2016.

McGarvey, Robert. "Troll Wars: Patent Lawsuits Multiplying Against CUs". Credit Union Times. Credit Union Times, 16 Sept. 2013. Web. 13 Aug. 2016.

Minor, Catherine. "Mobile Remote Deposit Capture." Federal Reserve Bank of Minneapolis. Federal Reserve Bank of Minneapolis, 16 June 2015. Web 16 June 2015.

"RDC Patent Lawsuits Targeting Credit Unions." CUNA Mutual Group. CUNA Mutual Group 31 May 2013. Web 17 June 2015.

"Remote Deposit Capture." CUNA Mutual Group. CUNA Mutual Group, Feb. 2013. Web. 17 Jun. 2015.

"Remote Deposit Capture and Duplicate Presentments." CUNA Mutual Group. CUNA Mutual Group, 14 Jan. 2014. Web. 17 Jun. 2015.

"Remote Deposit Capture Overview." Remote Deposit Capture. Remote Deposit Capture, N.d. Web. 14 Aug. 2015.

"Risk Management and Remote Deposit Capture." Fiserv. Fiserv, Apr. 2015. Web. 17 Jun 2015.

"Risk Management of Remote Deposit Capture." FFIEC. FFIEC, 14 Jan. 2009. Web. 10 Aug. 2015.

Sczyrba, Meg and Healy, Thomas. "Mobile Banking and Payments. What are the Rules?" ABA Bank Compliance. Sept-Oct 2012. Web 28 Aug. 2012