AMAZON TEXTRACT
a proposed solution for RightFax

AWSome

AGENDA

- THE TEAM
- CURRENT STATE
- WHAT IS AWS TEXTRACT?
- FUTURE STATE
- BENEFITS
- RISK & MITIGATION
- CHANGE MANAGEMENT
- SUMMARY
- APPENDIX

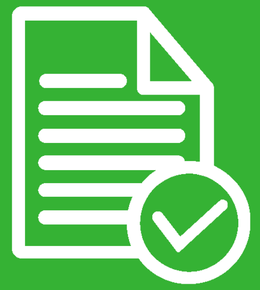
AWSome TD

HELLO!

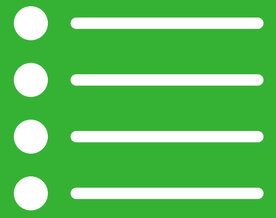
WE ARE TEAM AWSome

Christopher Ellis, Aran Theiventhiran, Jennifer Felix, Krystyna Poremba, Antony Levine. We are students from across Ontario studying a wide range of fields: from business to neuroscience to digital arts.

CURRENT STATE



Discharge / Funding Request Received to Inbox



Select the 20 oldest time-stamped documents (FIFO)

Move documents to personal folder in RightFax Inbox

Analyze the request type Discharge / Funding in PDF file

In PDF file, select attach to email

In subject line utilize request macros or request type tool to tailor subject line

Forward the Fax Document to the appropriate Inbox

Move completed request in Outlook to RIghtFax Officers completed folder

TYPES OF DOCUMENTS

Request for Funds/Information

Completion is Mandatory

To: Credit Administration Services — Fax #:
Attention:

From: Barrister & Solicitor — Solicitor Telephone #: / Solicitor Fax #:

Re: Mortgagor(s):
Guarantor(s):
Mortgage Reference Number: — Branch:
Address of Property:
Legal Description:
Mortgage Amount: $
Mortgage Closing Date:

REQUEST FOR FUNDS:

Please provide completed form at least 2 business days prior to the scheduled Mortgage Closing Date, or there may be a delay in funding.

☐ I/We have complied with all your conditions and requirements set out in the Solicitor/Notary Instructions and am/are in a position to advance the mortgage or credit facility contemplated (complete Instructions for Delivery of Funds below). I/We request funds in the amount of $_____ for the Mortgage Closing Date of _____.

☐ The Mortgage Closing Date/Mortgage amount changed (complete Notification of Change below).

Instructions for Delivery of Funds (select one):

☐ Deposit to my/our TD Canada Trust, Trust Account #: _____ Branch: _____

☐ If previously approved by TD Canada Trust, deposit to my/our Trust Account #: _____ at Institution #: _____ Branch #: _____

☐ Pickup cheque at branch: _____

☐ Mail/Courier cheque

CONFIRMATION OF REGISTRATION (Collateral Mortgage only):

☐ The Mortgagor(s) have requested the Line of Credit be activated and no funds are required to be advanced at this time. Details of the registration of the Mortgage are as follows:

Mortgage Priority: ☐ First ☐ Second ☐ Other: _____

Registration Number/Particulars: _____

Date of Registration (mm/dd/yyyy): _____

Date ILA Signed (mm/dd/yyyy): _____

I confirm that the above mentioned Mortgage has been registered in accordance with the Solicitor/Notary Instructions issued by The Toronto-Dominion Bank and all information above is accurate.

This fax Page 2 of 2 was received on 19/06/2019 3:04:44 PM [Eastern Daylight Time]

Scotiabank — STEP/Non-STEP Payout Statement

Issue Date	July 02,2019
Payout Date	July 10,2019
Statement Expiry	July 16,2019
Issuer's Address	Retail Service Centre - Stratford, 10 Wright Blvd, Stratford, Ontario, N4Z 1H3
STEP/Non-STEP Statement for	Discharge
STEP Account Number [1]	
STEP Credit Limit	$410,000.00
Mortgagors	
Property Address*	

** The Property Address listed on this statement reflects the address in Scotiabank's records as at the Issue Date related to the Account Numbers you have requested be paid out. Please ensure that this is the correct Property Address in connection with your payout request. If the Property Address listed above is not the intended property in connection with your payout request, please contact the Retail Service Centre - Stratford. In the event any mortgage is discharged in error as a result of an incorrect Account Number(s) provided to Scotiabank in a payout request, the mortgagor must pay all costs associated with Scotiabank having to re-register the mortgage.*
If you received this statement in error, please contact the sender immediately by telephone at 1-800-567-1331 (collect if required). A courier will be sent to retrieve the documents or, alternatively, immediately destroy this transmission, including all attachments, without copying, distributing or disclosing same.

MORTGAGE LOAN(S) -*For more information, including prepayment charge amounts and potential prepayment charge reductions, please consult the attached mortgage statement.*

Account Number		-	-
Per Diem [3]	$17.74	-	-
Balance on Payout Date [2]	$190,639.81	-	-

LINE(S) OF CREDIT

Account Number		-	-
Per Diem [3]	$0.00	-	-
Balance on Payout Date [2]	$0.00	-	-

CREDIT CARD(S)

Account Number	-	-	-
Per Diem [3]	-	-	-
Balance on Payout Date [2]	-	-	-

TERM LOAN(S)

Account Number	-	-	-
Principal and Interest Balance	-	-	-
Prepayment Charge [4]	-	-	-
Per Diem [3]	-	-	-
Balance on Payout Date [2]	-	-	-

OVERDRAFT PROTECTION

Account Number	-	-	-
Balance on Payout Date [2]	-	-	-

FEES

Discharge Administration [5]	See Attached
Registry Office Discharge Registration [5]	See Attached

Total Payout Amount [6]	**$190,639.81**

1. The Scotia Total Equity Plan (STEP) is a revolving credit facility for multiple product component secured by a collateral mortgage.
2. The quoted balances are projections as at the Payout Date requested. This amount is the balance as at the Issue Date plus the Per Diem indicated for each day leading up to, and including, the Payout Date plus any prepayment charges. This statement assumes all payments due are paid on their due date. Adjustments will be necessary if payments are made or not made, any amounts are reversed or, if additional charges or fees are processed or incurred following the Issue Date. Interest will continue to accumulate at the agreed upon interest rate until payment is received in full. If the credit card and /or line of credit has creditor insurance coverage in force, then there will be a balance outstanding on the next monthly account statement. The customer is responsible for ensuring the final balance on a closed account is paid in full.
3. *Per Diem* is a daily interest charge determined based on the interest rate applicable to the Account Number on the Issue Date. If the Total Payout Amount is received by Scotiabank later than the Payout Date but before the Statement Expiry date, the applicable Per Diem amount must be added to each Balance on Payout Date for each day from the day after the Payout Date up to and including the date that payment is made. If the interest rate applicable to an Account Number is a variable rate, the Per Diem shown in this statement may change in accordance with the applicable personal credit agreement. If the Total Payment Amount is not paid by the Statement Expiry date, this statement will be void and a new statement must be obtained from Scotiabank.
4. The prepayment charge for a Term Loan (if applicable) is equal to 90 days' interest on the principal balance on the Payout Date at the interest rate applicable to the Term Loan. The amount of the prepayment charge may change if the balance of your Term Loan changes or, if you have a variable interest rate, if your interest rate changes in accordance with the applicable personal credit agreement.
5. If a discharge of the mortgage is required, we must collect the applicable Discharge Administration and/or Registry Office Discharge Registration fees indicated. Where the Registry Office Discharge Registration fee is blank or "Nil", you will be required to pay a government registration fee directly to the Land Registry Office.
6. The Total Payout Amount is the sum of all Balances on Payout Date and any Fees indicated on this statement. Please forward the Total Payout Amount by ONE certified cheque, bank draft or money order in the Issuer Address above or any Scotiabank branch.

This statement is issued subject to any errors or omissions.

This statement is issued by an authorized representative of Scotiabank

If you have any questions regarding this communication or require additional information, please contact our Support Desk toll-free, at 1-800-567-1331

Form: STEP Payout PEGA(06/18)

, LL.B.
BARRISTER AND SOLICITOR

June 19, 2019

The Toronto-Dominion Bank
Discharge Department
4720 Tahoe Blvd. (Building 1)
Mississauga, Ontario
L4W 5P2

Attention: Mortgage Statements

Dear Sir or Madam:

Re: and The Toronto-Dominion Bank
Existing second mortgage

SECURED LINE OF CREDIT:
My File No.:

I, am the solicitor acting on behalf of mortgagor referred to above. My client is arranging a new first mortgage on the property with a closing date scheduled for June 25, 2019.

Would you therefore kindly provide my office with a mortgage statement for discha setting out all amounts payable so as to obtain a discharge of the mortgage as at su confirming the balance in the tax account and your discharge fee, if applicable.

Kindly provide the statement to my office as soon as possible.

~~Yours very truly,~~

This fax Page 2 of 2 was received on 19/06/2019 3:05:49 PM [Eastern Daylight Time]

TD Canada Trust
Bridge Loan Financing Agreement

Branch Transit No. 2240
1532 WOODBINE AVE,KESWICK,ON L4P0E2
Date: JULY 10,2019

Part A: Customer

TD Canada Trust Bridge Loan Account Number:

Customer Information

Loan Information

Principal Amount of loan: ..... $ $ 464,100.00

Interest Rate: Variable Rate: TD Prime Rate + 4.000% ** = 7.950% **
(as of the date above, TD Prime Rate is 3.950% **)

TD Prime Rate means the annual interest rate established and reported by us to the Bank of Canada from time to time as a reference rate of interest for the determination of interest rates we charge to customers of varying degrees of creditworthiness in Canada for Canadian dollar loans made by us in Canada.

**All rates shown are annual interest rates in effect as of the above date.

Other Charges

You have agreed to pay a Setup Fee totaling: ..... $ $ 0.00
and have authorized us to deduct this amount from the Principal Amount.

Advance of Funds

After deducting the amount of the Setup Fee from the Principal Amount, the net amount of money that we will advance to you is ..... $ $ 464,100.00

Loan Payment

In return for lending you the Principal Amount, you promise to pay us **ON DEMAND** at our Branch named above, the Principal Amount of loan shown above plus interest at the Interest Rate shown above. Interest is chargeable from the date we advance or refinance the Principal Amount at the Interest Rate until you repay the Principal Amount and accrued interest in full. We calculate interest daily on the basis of a year of 365 days (including February 29 in a leap year) with the result that the annual interest rate that we charge during a yearly period that includes February 29 will be equal to the Variable Rate in effect on each day in that yearly period multiplied by 366 and divided by 365. This results in slightly more interest being charged in such period, but when converted to an annual rate that is rounded to the nearest 1/8th of 1 percent, the effective annual interest rate for such yearly period will be the same as the rate that we have disclosed to you. Interest on the Principal Amount is payable monthly, not in advance, at the applicable Interest Rate and is payable by you both before as well as after:

- we demand payment in full;
- a default occurs under this agreement;
- a judgment is made against you;

until the loan is repaid in full. Interest on overdue interest shall be calculated and is payable on the same basis and at the applicable Interest Rate until repayment in full.

Terms and Conditions

You agree, in consideration of the loan, as follows:

- to provide us with security in a form satisfactory to us, that may include, but is not limited to, a collateral mortgage on the property located at

  should the sale of the Sale Property not close as scheduled on , (the "Sale Property")
  (the "Closing Date");
- to execute any such security and related documentation as may be requested by us within a reasonable period of time;
- to ensure that adequate fire insurance coverage will be in force on the Sale Property until the loan is paid in full; and
- this loan may not be disbursed, at our discretion, should the search required below reveal other encumbrances registered on the Sale Property.

RIGHTFAX CURRENT STATE

CYCLE TIME

VOLUME

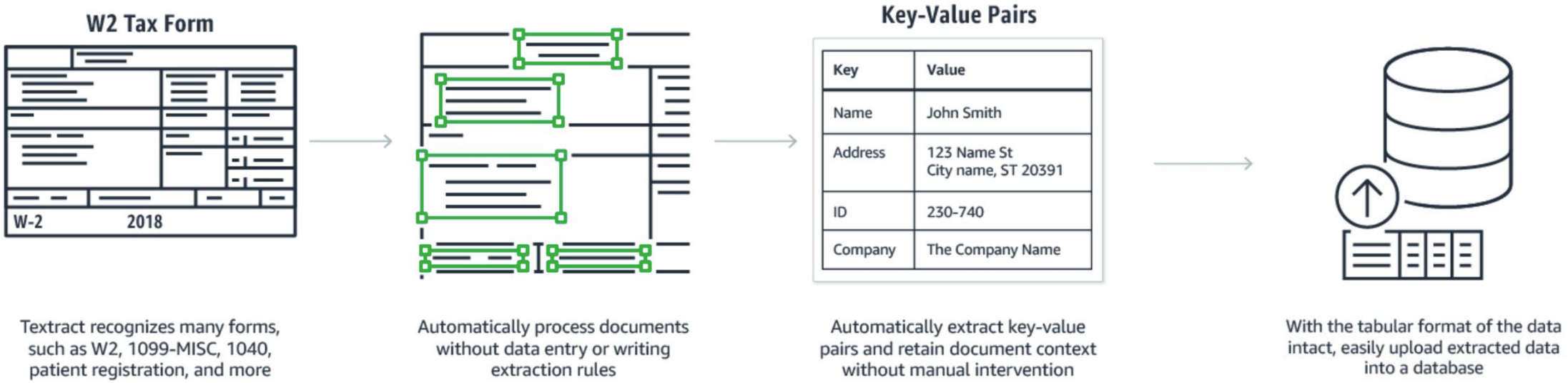
FTE

PAIN POINTS

1. TRIAGE FILLING
   a. Current state, all officers have no line of sight to other officers triaging making it difficult to search for sent files in Outlook
2. REQUEST DIFFERENTIATING
   a. Unable to identify Funding requests from Discharge at initial stage. Officers have to go into the file first and analyze to determine whether it is a Funding request
3. EMPLOYEE EXPERIENCE
   a. Officers working RightFax have a more mundane experience because they are working a less judgment based task.

WHAT IS AWS TEXTRACT?

Ocular Character Recognition (OCR)



Textract recognizes many forms, such as W2, 1099-MISC, 1040, patient registration, and more

Automatically process documents without data entry or writing extraction rules

Automatically extract key-value pairs and retain document context without manual intervention

With the tabular format of the data intact, easily upload extracted data into a database

Quickly and accurately extract data from typed documents

No code or templates to maintain

Lower document processing costs

FUTURE STATE

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OFFICER WORKFLOW

Discharge / Funding Request received to Textract

Textract processes document

Officer now retrieves incoming Discharge or Funding Request

TEXTRACT WORKFLOW

FIle is Uploaded to AWS Cloud Server

AWS Textract processes file, converts to readable document

AWS Textract creates Key - Value pairs allowing for easy searchability

Readable file is now uploaded into AWS Cloud

BENEFITS

Cost

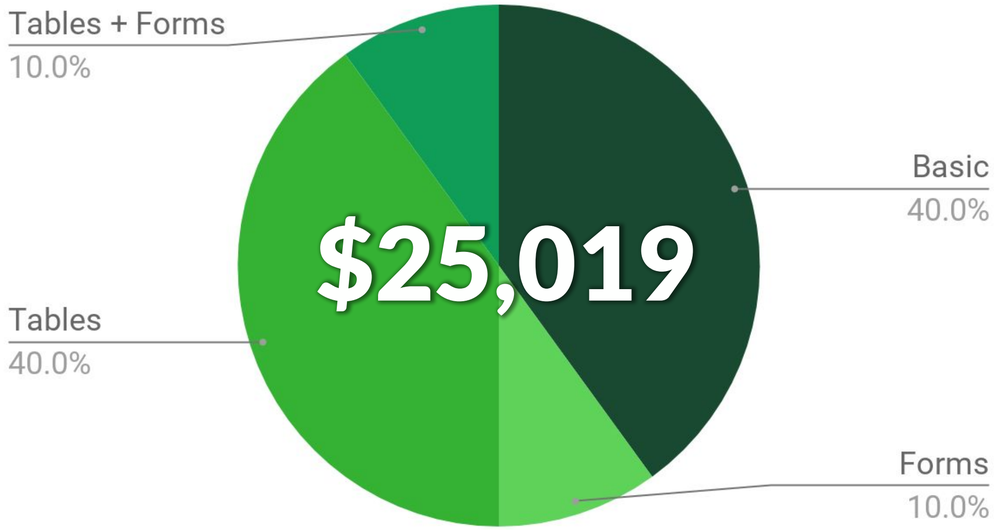
Inexpensive storage and no subscription cost. Utilizes a pay per usage policy

Automation

Partnerships exist with robotic software allowing for automation of the discharge process and customer retention benefits

Speed

Eliminates “dead” time with it’s almost instantaneous approach to identifying documents. Eliminates human error when attaching documents.



5% human error rate

RISK & MITIGATION

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CUSTOMER (TD)

Responsibility for security ‘IN’ the cloud

AWS

Responsibility for security ‘OF’ the cloud

PRIVACY

Does Amazon use customer data for… Personal use? Sales?

STORAGE

Who has control of data within the cloud?

SECURITY

Who is responsible for security?

CHANGE MANAGEMENT

Awareness
Email blast informing officers of change

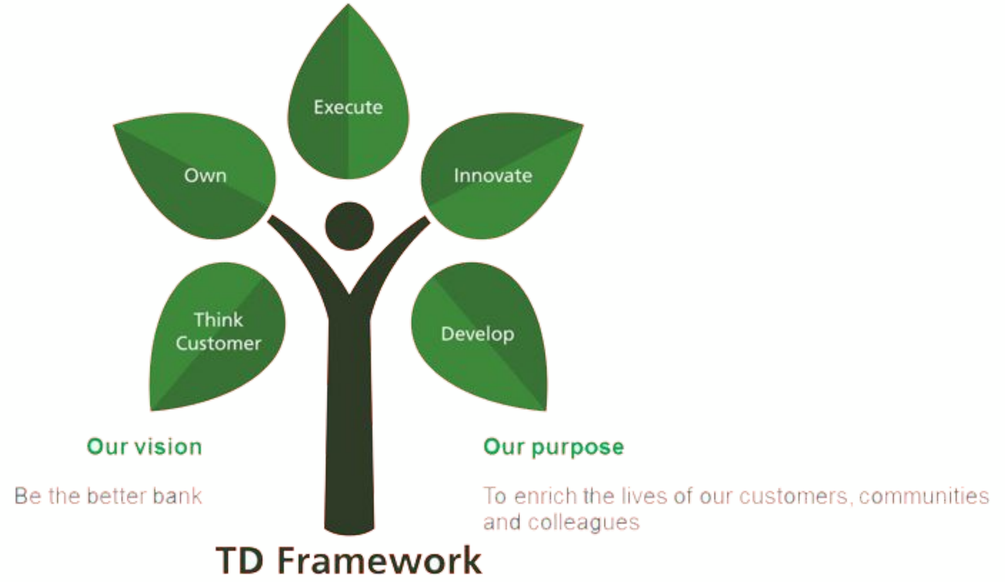
Desire
Identify and empower change leaders
Simultaneously implement Textract nationally

Knowledge
Pilot launch of Textract and introduce National Learning Curriculum

Ability
Ensuring officers feel confident to use the new technology

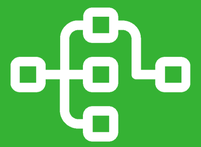
Reinforcement
Available literature to reference and having recognition to the change leaders

SUMMARY



RENOWNED COLLEAGUE EXPERIENCE	Officers can be allocated to other workflow tasks and have more opportunities to develop themselves
CUSTOMER OBSESSED	Faster and more accurate triaging of documents allows us to decrease SLA times
INNOVATE & SIMPLIFY FOR SPEED	Automate RightFax, increase efficiency and provide framework for digital storage
UNLOCK VALUE	Open up opportunities for further automation, data analysis and efficiency improvements

APPENDIX



RightFax Process Map

National RightFax Numbers

List of SME’S & Personal Experts Consulted

Benefits Map

Task Inventory

THANK YOU TO ALL!

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SLIDE 1
Hi everyone. For our summer student project, we were challenged to improve a process within MOCS using a digitized solution.

SLIDE 2
Today we are going to be going through our proposed solution beginning with the current state, moving towards our proposed solution and future state, foreseen benefits and risks associated with our solution and a change management approach to adopting the change.

SLIDE 3 - TEAM
Now before we continue, let's introduce the team. My name is Krystyna, and these are my team members Antony, Aran and Jen. Additionally, we would like to give a special thanks to the continuous help from Nick and Katie from Discharge MOCS and Cliff from Enterprise Process Excellence. Furthermore, to the 15 plus other officers, TL's and TM's we interviewed, shadowed and learned from to better understand the process and finding the best solution to the problem.

SLIDE 4 - CURRENT STATE
After sitting with Officers stationed on Rightfax we want to share their experience by painting a picture for you. Imagine you're an employee within MOCS working on the Discharge team. You have been assigned to RightFax for the past week, and have processed hundreds of documents. You sit at your desk and start to load Outlook getting ready to drag faxes received to the inbox to your specific folder. From there you open every single attached item to examine its contents to know where to send it. That PDF is then attached to an email using MACROS to tailor the subject line for the recipient to utilize. Press send, move the finished email to the completed folder and you're done. Sounds fun right? From this process, we determined our problem statement:

The Rightfax process is critical to both the Discharge and Funding teams but this process provides minimal opportunities for employee empowerment and restrains capacity that would otherwise be prioritized to more judgement-based tasks.

SLIDE 5 - DOCUMENTS
The most common types of documents received are requests for funds, requests for discharge statements and discharge statements from other financial institutions.

SLIDE 6 - PAIN POINTS
The current Rightfax process takes about a minute and a half with current national volumes of 205,703. That means 2.8 full-time employees are working on this task yearly.

This process obviously has some pain points, to say the least. The top three pain points based on our interviews are the lack of workflow oversight, difficulty in request differentiation and diminished employee experience.

SLIDE 7 - WHAT IS AWS TEXTRACT

Imagine if this long and tedious process could be replaced with a solution that increases speed and efficiency, reduces the chance of human error and digitalizes the storage of documents. Well, Amazon web services have unveiled a new technology that can do all that and more. Textract is AWS's brand new enhanced OCR service. OCR or (Ocular Character Recognition) is a technology that allows you to transcribe the characters on a typed document. For example, the mobile deposit feature on the TD app uses OCR to pull information off a cheque. While this tech is already used within the bank its capabilities aren't too advanced.

Textract is able to identify text boxes, columns, rows, forms on a typed document and converts them to readable digital versions. It can also identify special characters such as filled bubbles, checkboxes or even infer empty values such as a blank suite number on a property address. Textrract uses machine learning to enhance its powerful capabilities. It can learn what different strings of numbers and letters look like such as a mortgage number or insurance policy numbers and more. It can even identify the entire document as a request for funds, discharge statements etc.

Extracted data can be used to automatically populate form fields and eliminate manual data entry as well as creating a search index to allow the simple and quick retrieval of documents. This can be used to create automated processing workflows within MOCS while providing the base for enhancements across any area that deals with typed documents.

SLIDE 8 - FUTURE STATE

Now go back to being that officer working Rightfax. They spend time doing both that and other tasks (preparing statements, document prep…). Textract allows the officer to work on those other tasks, with their colleagues on the team getting work distributed directly to their inbox. Our team workflow changes from an officer judging and distributing the work to a machine completing this task. The document will come in, be uploaded to the AWS cloud, gets processed and then when paired with a workflow tool it is distributed. This allows the Rightfax process to be essentially automated.

Textracts implementation can result in a much more condensed Future state, where the document comes in, is uploaded to the AWS cloud, gets processed and then stored digitally.

SLIDE 9 - BENEFITS

Amazon Textract's functionality allows for increased efficiency by removing the Rightfax task. But that's not all, it also boasts a large number of benefits, including cost, automation capabilities, and speed. Amazon uses a pay per usage policy and with the current ratio of documents we receive, we are looking at an annual price of $25,019. It is also compatible with a variety of automation software companies, including BluePrism. This can allow us to unlock value in automating more processes in the MOCS world. For example, a recent investigation on automating the discharge process had the obstacle of insufficient OCR capabilities something which Textract can help overcome. Additionally, Amazon Textract decreases distribution time with its near-instantaneous indexing of documents and reduces the 5% human error rate of mis-attached documents.

SLIDE 10 - RISK

I'm sure the alarm bells are going off in your head and you're wondering, what are the risks? The risks associated with Textract are in line with TD's standard policies involving personal information. To mitigate the risk of privacy issues, AWS provides a fiduciary obligation to not access or use sensitive information without the consent of the user, except as legally required.

When choosing where the content is kept, Amazon gives users the ability to choose data centers in different regions of the world known as AWS regions, this allows for redundancy and mitigates the risk of using digital storage. In the event that Textract is down, TD will be able to implement their BCM plan and revert to the current RightFax process, resulting in BAU

Making sure new technology is secure is of utmost importance. AWS offers server-side encryption on top of the bank's encryption, preventing unauthorized third-party access while allowing the bank to secure content on its own terms, as we do today.

Textract is currently being used by companies such as Informed -- an auto lending platform -- and Healthfirst -- a not-for-profit managed care organization -- to further automate their processes and reduce manual data entry

SLIDE 11 - CHANGE MANAGEMENT

Having advanced technology is only one step to creating a more efficient process, making sure employees know how to utilize it is the second. To ensure ease in execution we believe we should use the ADKAR model of change management. ADKAR stands for awareness, desire, knowledge, ability and reinforcement and is a goal-oriented change management model that helps empower employees throughout all stages of a change. To effectively roll out Amazon Textract's software nationally an email blast would be sent to alert employees about the change. To inspire desire for the change amongst the team, leaders within the various teams would be identified to understand the change and its purposed benefits. Similarly to the current implementation of a national training curriculum, one catering to the new changes would also be created and distributed.Once implemented consistent communication between managers and officers to examine the impact of the change with recognition and manuals reinforcing it.

SLIDE 12 - SUMMARY

In summary, Amazon Textract is a technological solution that can improve efficiency with document distribution and eliminate the need for the Rightfax process within MOCS. Officers can now be allocated to other tasks and have more opportunities for self-development. Textract allows TD to provide faster service to our partners and clients and increases in task efficiency. However, one of the most important abilities Textract offers TD is the potential to unlock value with future automation of other tasks such as requests for discharge statements. Thank you again, Jen and Sandra, for taking the time today to listen to our pitches.