

# DEEPINSIGHTS™

## MPHASIS COGNITIVE COMPUTING PLATFORM

*Multiple Patents Pending*



Winner – Best Application  
of Artificial Intelligence (AI)  
for Financial Services



Stratus Awards for Cloud  
Computing' in the Artificial  
Intelligence category

# Smart Components for an Integrated Digital Workplace



## Business Challenge

- An international organization for ensuring stability of international monetary system
- For the analysts, research involves excessive paperwork, wait time for document review and handover, and outdated knowledge
- The org wanted to improve their experience with better knowledge management
- Enhance work efficiency through better information gathering, peer collaboration, document drafting, review approval and dissemination



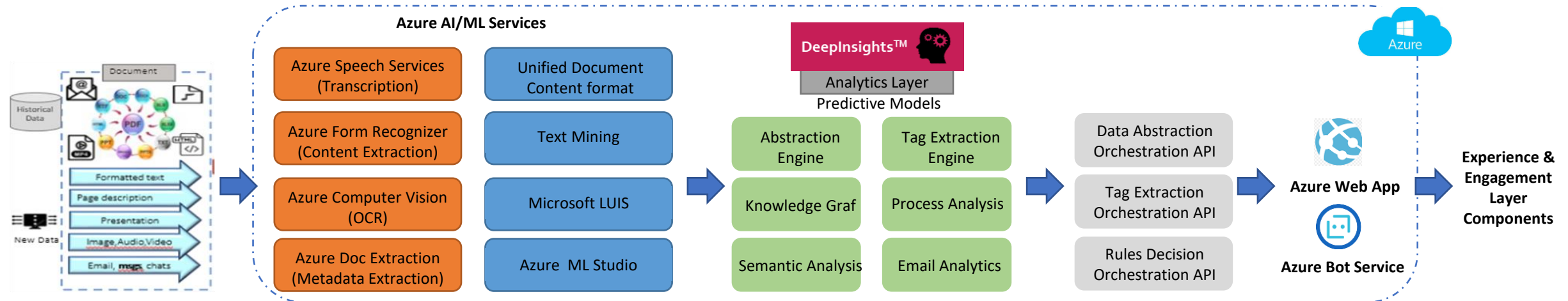
## Solution

- DeepInsights and Azure AI/ML based smart components for
- Targeted Search for relevant information
  - Automatic summary, and topic extraction from documents
  - Transcription of discussions and translation documents
  - Predictive analytics for skill assessment



## Benefits

- Allows smart review for identifying light or deficient report areas
- Smart Team creation through identification of expertise
- Smart workflow by identifying process steps and efficiency, identifying root causes of inefficient steps



# OFAC FRAUD PREDICTION FOR USD PAYMENTS

## Business Objective

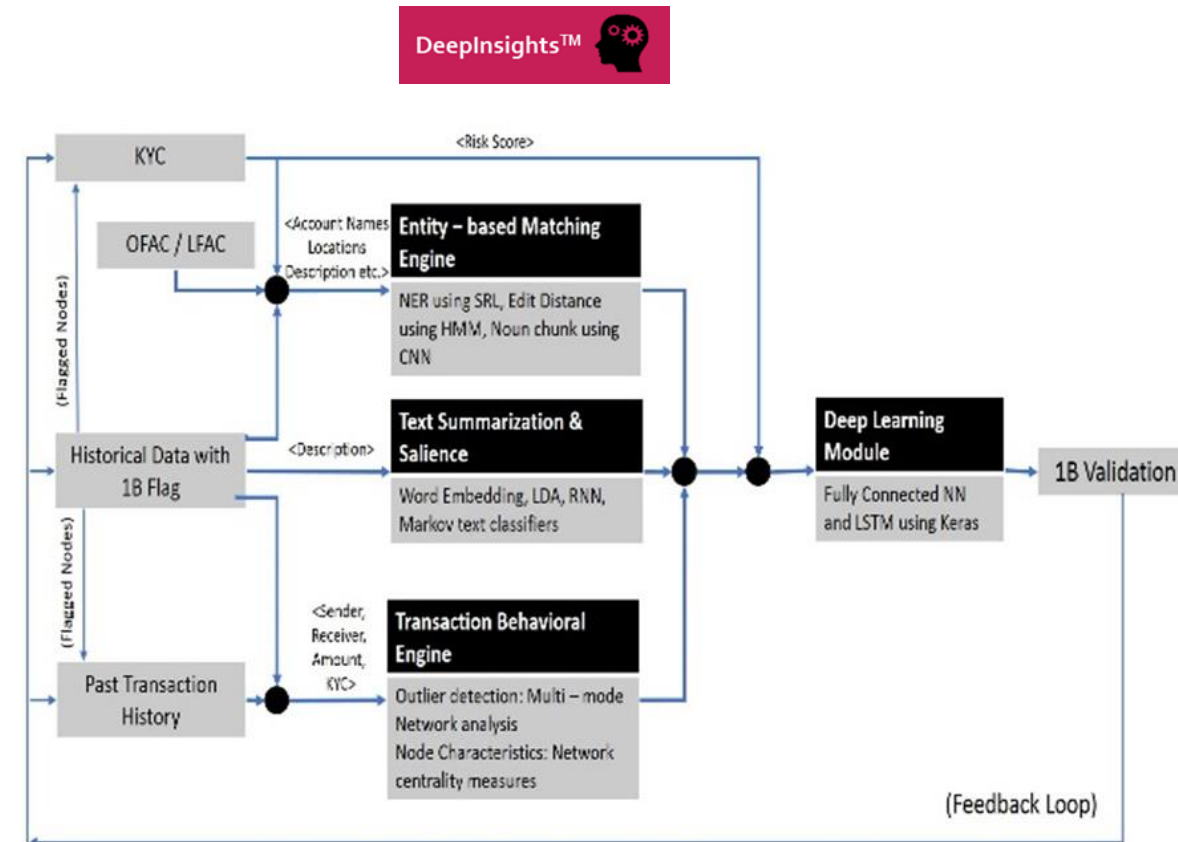
- Bank's USD Clearing Operations team is looking for a solution which uses Artificial Intelligence/Machine Learning to analyze across thousands of alerts and identify true positives with high confidence scores
- Reduce false positive and thereby reduce manual efforts as well as reduce operational risk (manual error)

## Problem to be addressed

- Eliminate Level 1A human investigation for the existing 3000 OFAC alerts per day

## DeepInsights based AI engine achieved the following

- Analytics models that helps in identifying the bad transactions real time thereby reducing the cost involved in manual examinations of transactions
- Generate Predictive analytics recommendations for alerts which are true positive
- Make a decision based on the data and feed it into the investigation platform.



# KNOWLEDGE INDEXING OF MULTIMEDIA DATA

## Business Objective

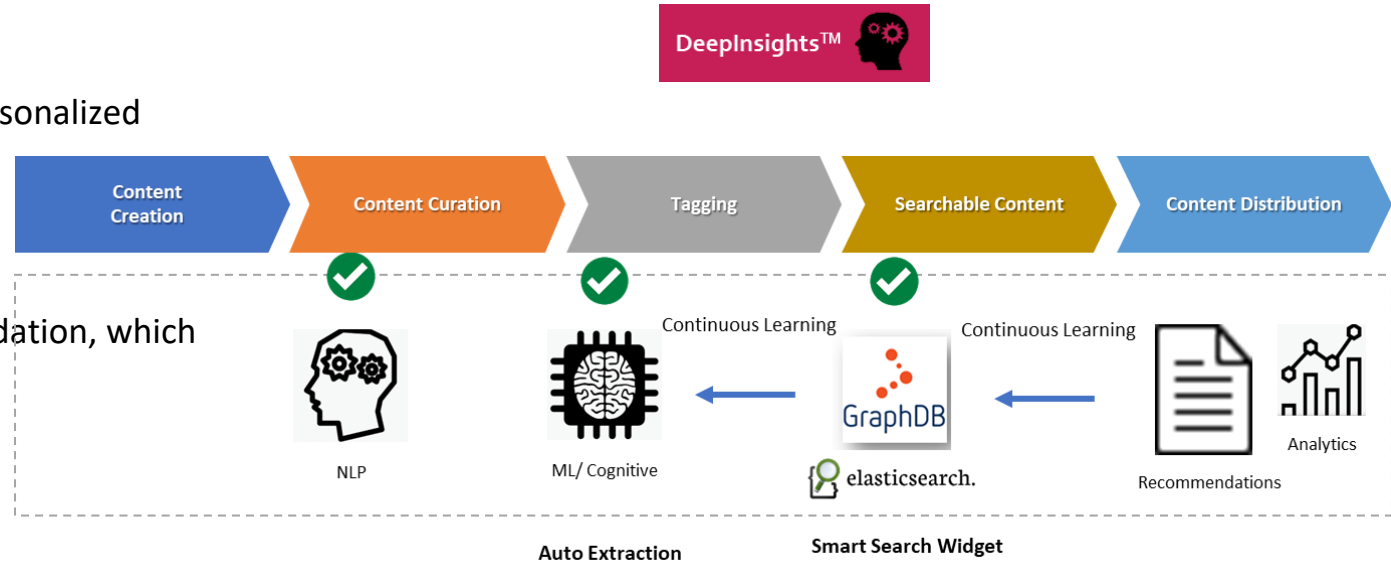
- Reduce content indexing and curation costs
- Combine with content recommendation engine for hyper-personalized content recommendations.

## Problem to be addressed

- Existing problem of manual content curation and recommendation, which is Time consuming, Expensive and Sub-optimal

## DeepInsights based AI engine achieved the following

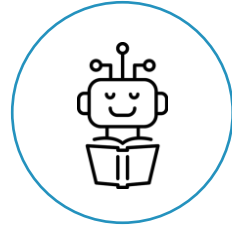
- Automated document tagging and indexing
- Automated generation of document summary
- Hyper-personalized content recommendation based on persona and role
- Improved customer Experience
- ML and NLP base content curation and recommendation
- Continuous learning engine





## How to improve productivity?

- Control attrition of brokers
- Additional FTEs due to Brexit
- Instill confidence in brokers
- Reduce errors
- Multiple countries



## Machine Learning in the Clearance Domain?

- Reduce caged shipments
- Customer Profile Matching
- Entry Build
- Increase preclearance volume

### Use Case 1: HS Code Mapping

- Analyze historical shipment data to find patterns to assign HS Code
- KPIs:
  - Improved Productivity
  - Reduce customs rejections on entries
  - Reduce Disputes

### Use Case 2: Predict Cage Shipments

- Find patterns from historical shipment data to predict probability of new shipments being caged.
- KPIs:
  - “Release” shipments as much as possible prior to flight arrival
  - Reduce cage dwell time (cage volume)



# ENHANCED DUE DILIGENCE USING DEEP LEARNING & NATURAL LANGUAGE PROCESSING

## PROBLEM DEFINITION

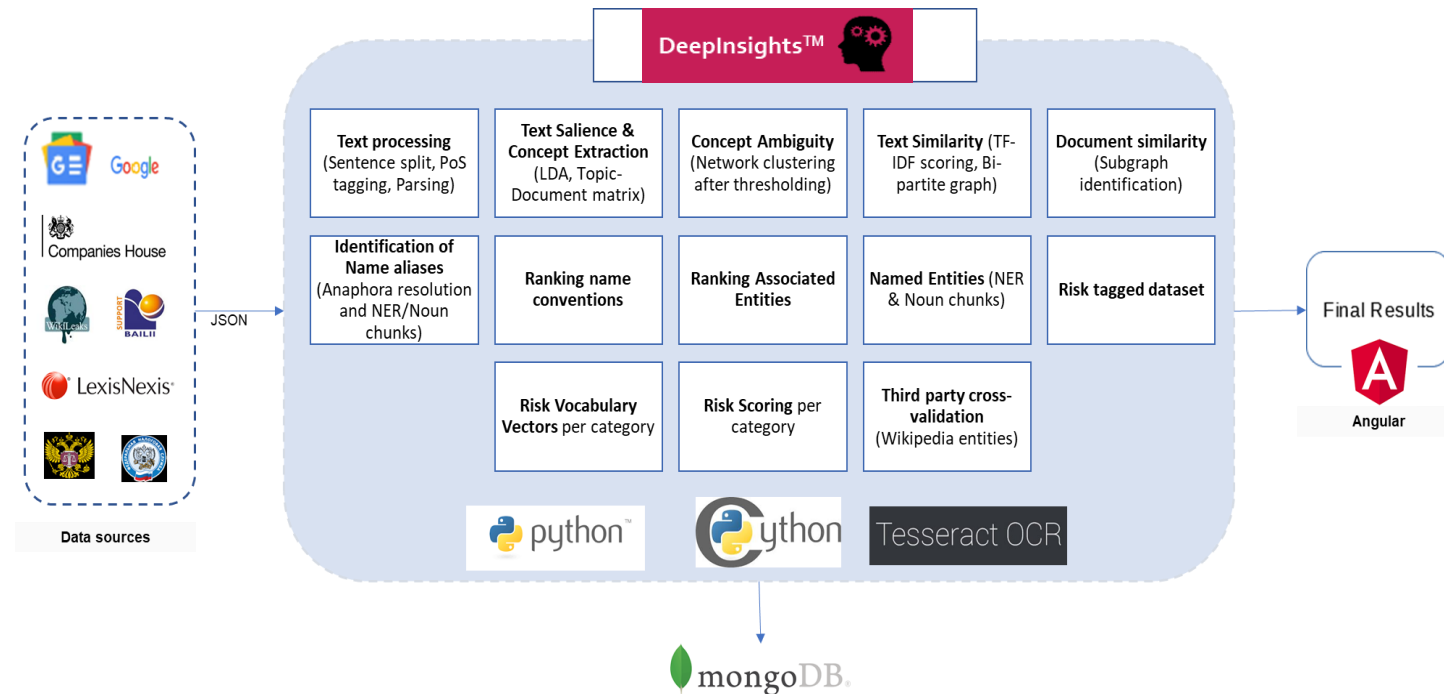
- Due-diligence, risk, KYC process complex, manual, time, cost & effort intensive (2-4 weeks)
- Automate the entire process of creating a financial risk reporting
- Support multiple languages starting with English & Russian

## SOLUTION

- Automate the process of obtaining and processing unstructured data from Internet searches and specific databases
- Automatic analysis of articles: Risk categorization within 16 defined Risk categories
- Deep Learning driven text summarization for generating article summary for report

## BUSINESS IMPACT

- Reduced time taken for EDD process from 15 day to less than 3 days.
- 60% - 90 % time savings
- Exponential reduction in turn-around time from data to insights



# LOGISTICS: IMAGE ANALYTICS FOR DAMAGED SHIPMENTS & PREDICTING TRAILER CAPACITY

## Business Objective

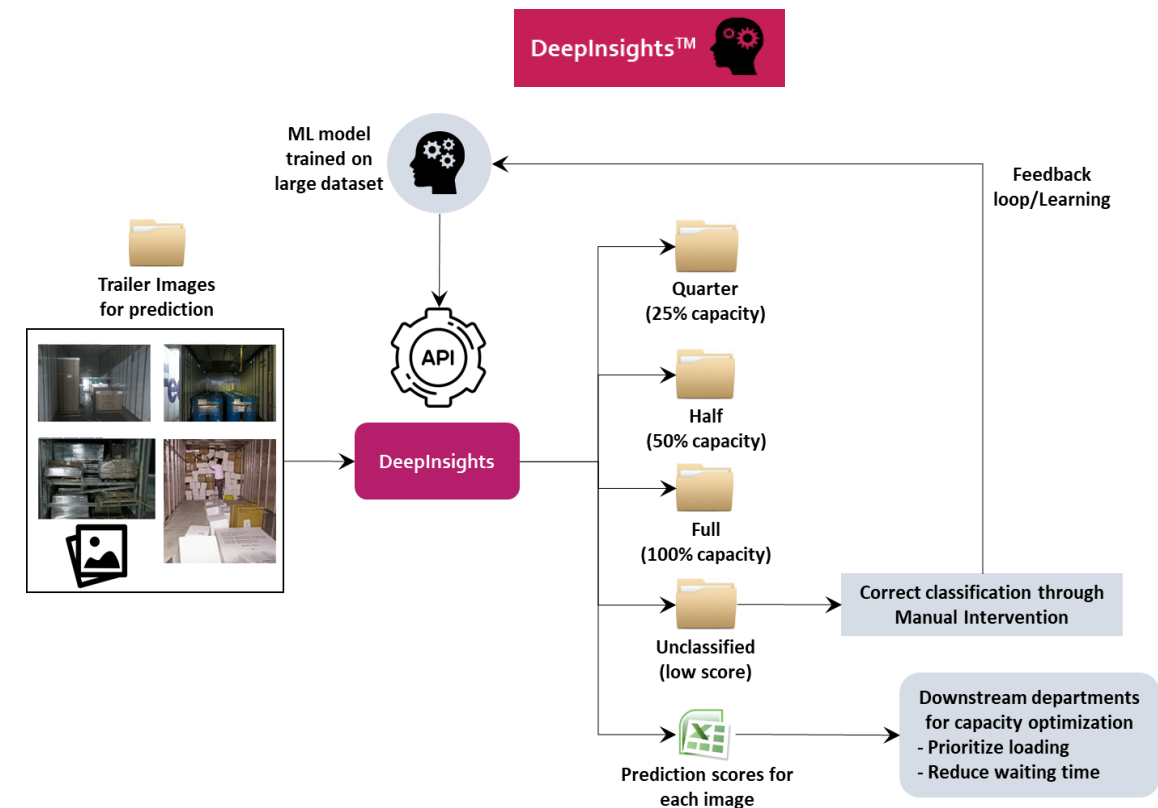
- Improve productivity and optimize trailer loading
- Solution which uses Artificial Intelligence/Machine Learning to analyze across trailer damaged & trailer loading images and identify true positives with high confidence scores
- Reduce false positive and thereby reduce manual efforts as well as reduce operational risk (manual error)

## Problem to be addressed

- Improve productivity and optimize trailer loading

## DeepInsights based AI engine achieved the following

- Analytics models that helps in identifying damaged shipments & right level of trailer loading (25%, 50%, 100% etc.), thereby reducing the cost involved in manual examinations of trailers
- Generate Predictive analytics recommendations for alerts which are true positive
- Make a decision based on the data and feed it into the optimization platform.



# BRANCH LOCATION ANALYTICS DECISION FRAMEWORK

## Problem definition

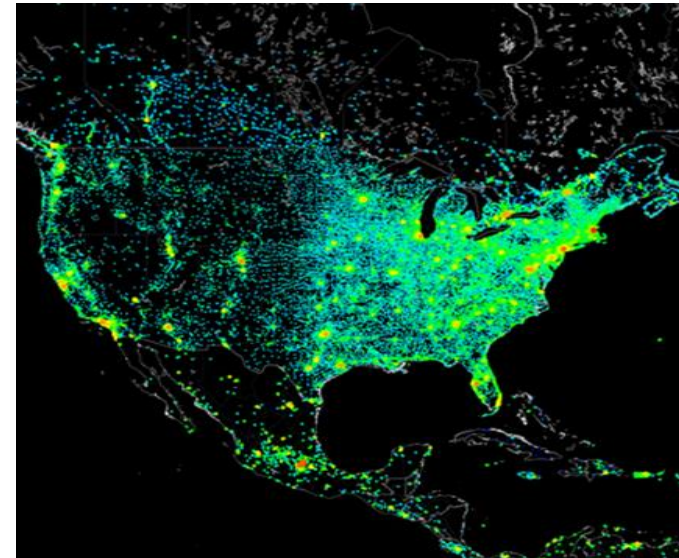
- Client's focus on growing retail footprint
- Setting up 200+ Brick and Mortar stores
- Need for decision matrix for optimal branch location

## Objectives

- Build and test a predictive decision support model
- Help Client to select the most appropriate locations
- Create Market Attractiveness Index over 388 MSAs in the US
- Leverage internal data and external data
- Create decision matrix and performance predictions

## Mphasis Solution Approach

- Leverage Mphasis AI driven Analytics platform DeepInsights
- Create 'Market Attractiveness Index'



Data Volume:  
10 GB

Loan level  
observations: 44 mn

MSA level Predictive  
Accuracy: 91%

Analytics run  
time: <1 hr

## Business Impact

- Dynamic markets attractiveness scores enabling decision making
- Models will adjust to changing market conditions in real time





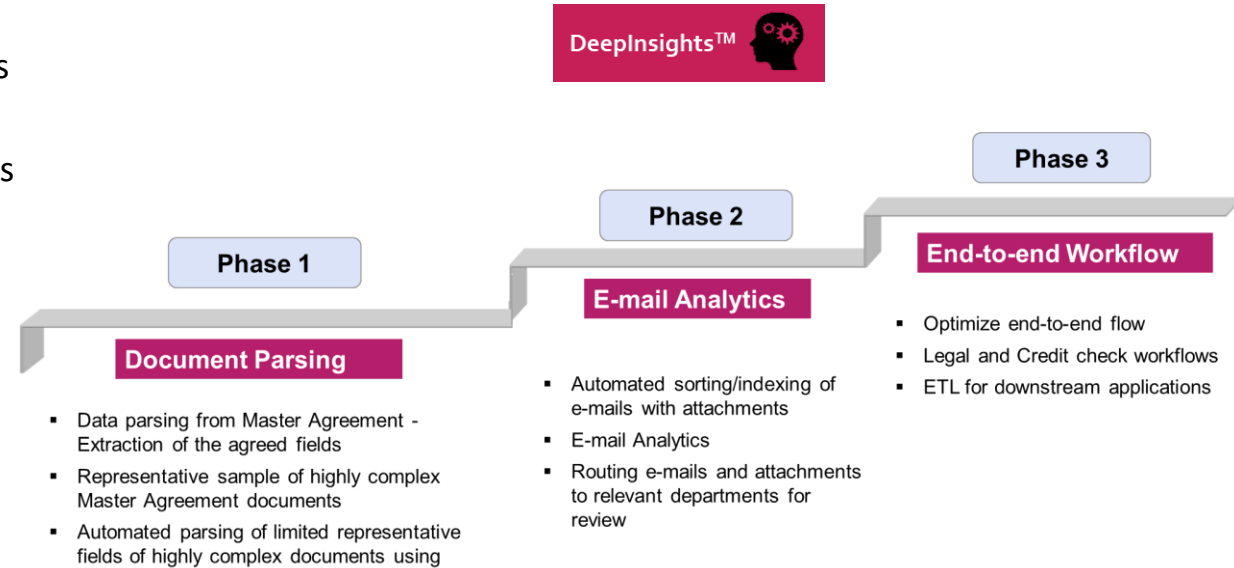
# AI DRIVEN BESPOKE CONTRACTS' PARSING & ANALYTICS

## Business Problem

- Processing Bespoke contract documents are time consuming and tedious due to their unstructured formats
- Lack of intelligence built into current systems to provide valuable insights using predictive analytics
- Lack of real-time extraction capabilities also add significantly to the processing cycle time
- This is adversely affecting the quality of data entered into other systems and consequently the decisions made

## Mphasis DeepInsights engine achieved the following

- Deploy advanced AI/ML models to intelligently identify and extract data from contract documents (document parsing)
- Build intelligent solution to identify e-mail content and sort e-mails based on relevant information



# OPTIMIZING REVIEW & REMEDIATION PROCESS IN FINANCIAL SERVICES

## Business Objective

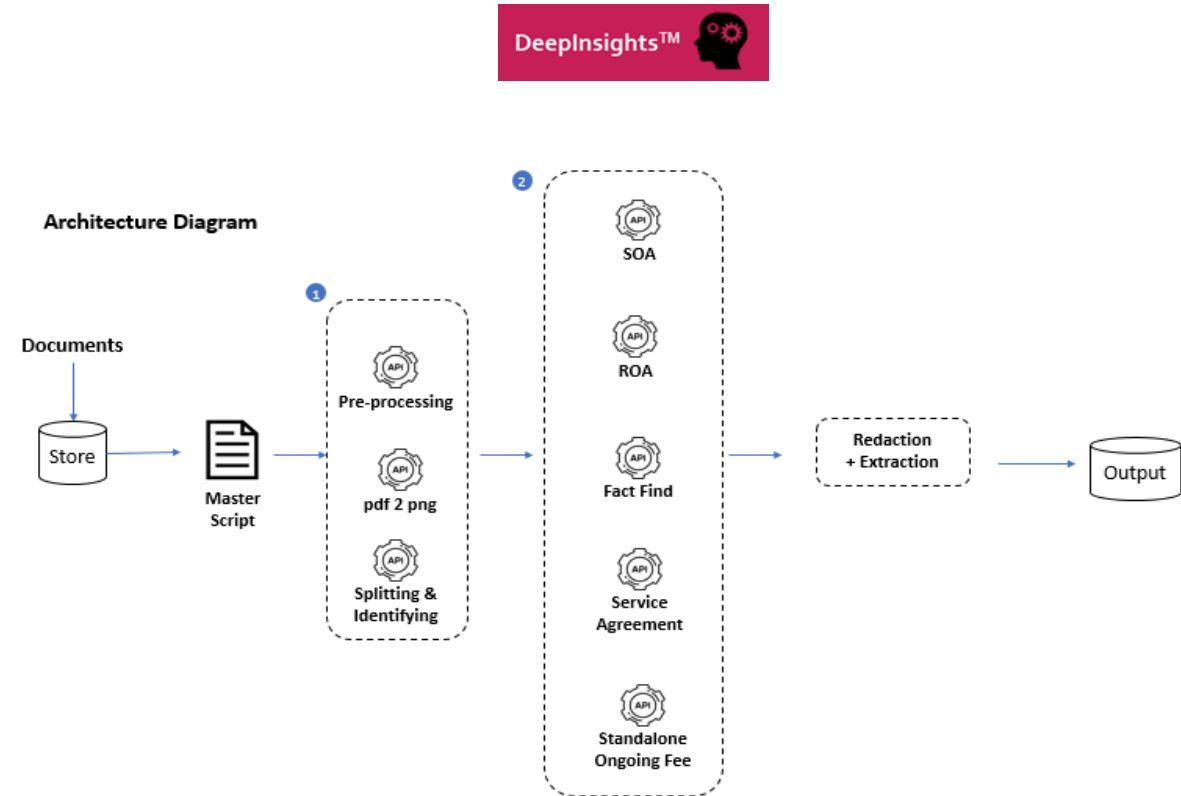
- A large amount of information related to client financial advice stored in paper and systems of record.
- The process of assembling information for Review and Remediation is time consuming, manual and open to error.
- There is enterprise-wide value to be realized from the application of technology to drive speed, quality, efficiency, scale & cost benefits.

## Problem to be addressed

- The current team of 8 compliance officers at 35 files per week will take over 40 years to review 50,000+ client files.
- Physically scaling this team is a challenge.

## DeepInsights based AI engine achieved the following

- Machine Learning for intelligent extraction and analysis of data from digital as well as paper documents and images
- Cognitive data extraction techniques for conversion of documents to machine readable format
- Analysed structured and unstructured data
- Key metrics trigger next steps in the automation workflow
- NLP based Document classification



# INSURANCE: BROKER CLAIM SUBMISSION ANALYSIS



## Business Challenge

- Large volume of in-bound documents from brokers with the information spread across the body of the email or in email attachments. Attachments are in word format, or digital or scanned PDFs
- There is no consistency of document structure either between brokers or within the same brokerage company
- It's a time consuming and tedious process. An operator typically clears 8-10 quotes from his queue per day.
- Complexity of the problem makes manual data extraction and analysis non-real time, challenging, costly and low on accuracy



## DeepInsights Solution

- The DeepInsights AI engine iterates through various techniques and deploys the predictive technique most suitable for the data at hand
- The engine checks for inter-field validity and flags values that occur with low confidence to call for manual intervention.
- RPA systems then access the key fields and update multiple legacy databases
- DeepInsights predictive analytics engine predicts quote conversion probability and highlights high/low performing brokers who consistently accept/reject quotes.



## Benefits

- Achieved over 90 % reduction in processing time per case document
- Predictive analytics prioritized underwriting queue with respect to quote conversion probability
- 90% accuracy in predicting deal conversion.



# BUSINESS OPERATIONS: EMAIL ANALYTICS, SEGREGATION AND ROUTING



## Business Challenge

- Enterprises are faced with a problem of having to process and respond to a large volume of inbound mails with a variety of content
- Assessing and classifying these emails requires effort of experts with vast variety of domain knowledge
- The routing of emails to the right recipient is time consuming and prone for errors and are dependent on the tacit domain knowledge of assessing experts.
- Manual segregation by domain experts involve time for action caused by email content length, variety of topics and overall volume in queue for action



## DeepInsights Solution

- Email data provisioning system for intelligent ingestion that scale to volume and variety of inbound email
- Cognitive engine that reads the email content and identify the topic(s) discussed using Deep Learning, Machine Learning and Text analytics
- The Classification and Prediction engine segregates them and assigns them to various classes, prioritises and routes the email to the right workflow



## Benefits

- Rapid email data ingestion and intelligent provisioning for analysis
- Reduced requirement of domain experts for email assessment and content summarization
- Reduced time for processing emails and segregating them based on content
- Real time routing of emails to right recipient
- Intelligent end to end workflow platform for email processing, routing and knowledge management.



# FINANCE: COGNITIVE DATA EXTRACTION & ANALYTICS



## Business Challenge

- Generate actionable insights from physical and digital data sources such as annual reports, bank statements, emails, customer complaints etc.
- Complexity of the problem makes manual analysis non-real time, challenging, costly and low on accuracy
- Information is residing in varied data and document types such as databases, PDFs, HTML, JPEG etc.
- Lack of standardization of information as well as fields needed for decision making



## DeepInsights Solution

- Machine Learning for intelligent extraction and analysis of data from digital as well as paper documents and images
- Cognitive data extraction techniques for conversion of documents to machine readable format
- Built in Big Data analytics module to analyse structured and unstructured data
- Key metrics trigger next steps in the automation workflow



## Benefits

- Over 95% accuracy in detection and extraction of key fields
- Reduced time taken for data extraction by over 70%
- Reduced operating costs by over 50%
- Improved client satisfaction through near real-time analysis of data
- Exponential reduction in turn-around time from data to insights



# THANK YOU

## About Mphasis

[Mphasis](#) (BSE: 526299; NSE: MPHASIS) applies next-generation technology to help enterprises transform businesses globally. Customer centricity is foundational to Mphasis and is reflected in the Mphasis' [Front2Back™](#) Transformation approach. Front2Back™ uses the exponential power of cloud and cognitive to provide hyper-personalized (C=[X2C<sup>2</sup>™](#)=1) digital experience to clients and their end customers. Mphasis' Service Transformation approach helps 'shrink the core' through the application of digital technologies across legacy environments within an enterprise, enabling businesses to stay ahead in a changing world. Mphasis' core reference architectures and tools, speed and innovation with domain expertise and specialization are key to building strong relationships with marquee clients. Click [here](#) to know

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